Antitakeover Provisions and M&A Strategy: A Causal Analysis

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Abstract

The protection provided by antitakeover provisions (ATPs) can be used by managers to undertake acquisitions (M&A) that either reduce their personal risk but worsen shareholder wealth, or those that increase their personal risk but enhance shareholder wealth. We exploit sources of exogeneity at the level of an investing firm and find that managers strategically increase the extent of ATPs in preparation for M&A. This pre-emptive behavior is associated with firms of lower risk, and with firms whose managers are otherwise more likely to engage in diversifying acquisitions. We document a positive, causal relationship between the extent of ATPs and returns to acquiring firm shareholders during M&A. Our findings highlight the importance of controlling for endogenous sample selection and support the notion that takeover protection reduces managerial myopia and benefits shareholders when it comes to determining and shaping a firm's takeover strategy.

Keywords: antitakeover provisions; mergers and acquisitions; value creation; causality; managerial myopia

JEL codes: G34; L20

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1. INTRODUCTION

A well-documented finding in mergers and acquisitions (M&A) is that there is a substantial variation in the market assessment of M&A quality from the viewpoint of the bidding firm (e.g., Fuller, Netter, and Stegemoller, 2002). A long-standing objective of the literature is to find factors that can both explain this variation and be relied on to differentiate between shareholder wealth reasons and managerial own motives behind M&A. An important but controversial factor in this regard is the strength of acquiring firm's antitakeover provisions (ATPs) and the extent to which these provisions are used or abused by acquirer management (see Masulis, Wang, and Xie, 2007; Harford, Humphery-Jenner, and Powell, 2012; Drobetz and Momtaz, 2020). We re-examine the impact of acquiring firm's ATPs on takeover likelihood, preferences and value creation. In doing so, we intend to reconcile the previously contradictory findings on the role of these provisions in wealth creation to acquiring firm's shareholders.

ATPs protect acquirer management in several ways. First, they shield firms from the disciplinary market for corporate control. They also provide financial protection to management (e.g., golden parachutes) in the event of job loss due to M&A activity. Finally, these provisions safeguard management from fickle short-term investors and price pressures. On the one hand, the protection provided by ATPs can help mitigate managerial risk aversion and myopia (e.g., Stein, 1988) and enable management to engage in acquisitions that enhance shareholder value but increase their personal human capital risk. Such acquisitions might otherwise be forgone for fears of unsuccessful acquisition attempts which increase the likelihood of acquirer management losing their jobs either because of shareholder pressure or acquiring firms themselves becoming future targets (e.g., Mitchell and Lehn, 1990). On the other hand, the protection provided by ATPs can also be used by management to entrench themselves and engage in acquisitions that destroy shareholder wealth but reduce their personal risk. In other words, ATPs enable management to

increase their benefits and span of control by insulating them from consequences (e.g., Roll, 1986; Shleifer and Vishny, 1989).

A significant concern, however, relates to whether the observed levels of ATPs are sufficiently exogenous to aspects of takeover attempts. Firms might change their ATPs in anticipation of an acquisition attempt (see, for example Karpoff, Schonlau, and Wehrly, 2017). Failure to take this possibility into account will lead to reverse causality and result in erroneous inferences. As a solution, we use instrumental variables (IVs) to examine the effects of ATPs on takeover likelihood and returns to acquirer shareholders.[1] A conventional way to proxy for the level of ATPs is to rely upon the Gompers, Ishii, and Metrick (2003) [GIM] index, which adds one for each antitakeover provision out of a possible twenty-four. We follow the extant literature and use GIM index as our primary proxy for takeover protection.

Using a sample of 21,382 firm-years and 5,512 bids made by 4,361 publicly traded firms in the U.S. between 1993 and 2012, we document a tendency for bidding firms to strategically increase the extent of takeover protection in preparation for acquisitions, especially when there is greater uncertainty about how favorably the market will react to their acquisitions. Specifically, we document a marginally *positive* relationship between the likelihood of a firm being a bidding firm in a given year and non-instrumented values (i.e., observed values) of the GIM index. We find that the same relationship is marginally *negative* when we use instrumented values of the GIM index. Further, we find that this preemptive behavior is mostly associated with firms that are characterized as being of lower risk and with bidding firms that are otherwise more likely to diversify the firm away from its primary business.

We find that in the absence of instrumental variables there is evidence of weak and economically insignificant relationship between the wealth effect to acquirer shareholders and the extent of takeover protection. However, when relying on IVs and using an array of econometric specifications, we find substantive evidence of a causal, positive, and economically

[1] These IVs are similar to those recommended by Karpoff et al. (2017) as sources of variation for ATPs that are plausibly exogenous with respect to the likelihood of a takeover attempt.

significant relationship. For instance, our results suggest that adopting one more antitakeover provision in the GIM index is predicted to increase the wealth effect by 0.52 percentage points. This compares to an interquartile range for the unconditional wealth effect that is 5.10 percentage points and almost centered on zero.

Further, we find that the positive relationship between ATPs and acquirer returns is driven by non-diversifying M&A when we separately examine diversifying and non-diversifying M&A. While acquirer returns in general are lower in diversifying M&A compared to non-diversifying M&A, and indicative of stronger managerial own motives (see Morck, Shleifer, and Vishny, 1990; Hoechle, Schmid, Walter, and Yermack, 2012), our results suggest that this diversifying effect is not made worse with more takeover protection. That is, our results suggest that takeover protection does not matter to the market when evaluating the wealth effect for diversifying M&A. Furthermore, there is no suggestion of systematic strengthening of takeover protection in advance of diversifying M&A. For non-diversifying M&A however, preemptive strengthening of takeover protection is evidential of firms with lower risk and of firms that would otherwise pursue diversifying M&A. This suggests that managers of bidding firms gain assurance from strengthened takeover protection to pursue riskier and more value creating M&A. Shareholders are likely the main beneficiaries in non-diversifying M&A due to potential operational synergies and increase in market power whereas managers bear the downside risks resulting from their undiversified human capital and anti-trust and regulatory challenges faced by non-diversifying M&A.

The implications of our causal findings for the related literature are as follows: We show that once endogeneity is properly accounted for, more wealth is created for acquiring firm shareholders when these firms have more takeover protection. These results are contradictory to the non-causal findings of Masulis et al. (2007) and Harford et al. (2012) who document a negative relationship between the wealth effect and the extent of takeover protection to find support for the managerial entrenchment hypothesis. Our results are also contradictory to those of Bauguess and Stegemoller (2008) who document no relationship between protective

governance structures and value creation. Their non-causal findings suggest that takeover protection is not given any consideration by the market when evaluating the wealth effect. In contrast, our findings suggest that takeover protection *is* given consideration by the market.

Two recent studies document evidence that is consistent with our findings on the effects of ATPs on acquirer returns. Humphery-Jenner (2014) documents a negative relationship between ATPs and acquirer returns but finds that a subset of hard to value bidders with greater takeover protection experience relatively lower wealth loss. We extend the work of Humphery-Jenner (2014) by showing that the positive effect of ATPs on acquirer returns is not limited to hard to value bidders. In a study of German bidding firms, Drobetz and Momtaz (2020) find a positive relationship between acquirer returns and ATPs. They argue that German institutional setting likely explains why their evidence contrasts with that presented in benchmark studies of U.S. firms (Masulis et al., 2007; and Harford et al., 2012). However, rather than being exclusively about more effective oversight, we show that it has a lot to do with possible reverse causality/preemptive strengthening of takeover protection.

To summarize, our study highlights the importance of adequately accounting for the strategic manipulation of ATPs by acquirer management in anticipation of M&A. Our findings are the first for the U.S. institutional setting to suggest that ATPs have the potential to incentivize managers to make better acquisition decisions for shareholders. Second, our findings are the first for any institutional setting to suggest that this positive effect on value creation comes from a pursuit of more focused acquisitions, rather than from diversifying acquisitions that are more opportune for satisfying managerial risk-reducing motives.

Our main findings on the relationship between takeover protection and shareholder wealth are robust to accounting for the possibility of a firm being a bidding firm in a given year. Our results are also robust to how we measure the GIM index (additive or threshold based), acquirer shareholder wealth effects (alternate measurement windows, continuous measure or binary indicator for positive returns), industry classification system (SIC or Fama-French classification), timing of the bids and to using sub-components of the GIM index and sub-samples

based on specific types of bids. To summarize, a major challenge in empirical studies is to ensure that the reported findings are not spurious correlations. We are reasonably confident that the results documented in this paper are causal as they are based on IVs established by literature and survive a battery of robustness checks.

An important aspect in a study like ours pertains to the validity of the instrumental variables. Motivated by research presented in Becker, Cronqvist, and Fahlenbrach (2011), Knyazeva, Knyazeva, and Masulis (2013), and Karpoff, Schonlau, and Wehrly (2017), we use geography and industry-based variables to instrument for observed levels of takeover protection. We construct the instruments by using two cohorts of firms that share historically with the focus firm either the decision to place headquarters within a certain geographical location or the choice of industry classification. Given the headquarters decision and the industry classification decision are made at incorporation and are rarely changed thereafter, both decisions are likely to have been made by all of the firms in our sample many years before the years we study. We closely follow the methodology of Karpoff et al. (2017) who use similar instruments. We present results of over-identification and instrument validity tests in all IV regression specifications.

2. HYPOTHESIS AND RELEVANCE TO LITERATURE

2.1 ATPs, exogeneity, and the likelihood of investing in M&A

A growing body of literature is reevaluating relationships between the outcomes of various types of corporate activity and the extent of takeover protection. Most of this work comes after the extensive review of the earlier literature on the effects of ATPs by Straska and Waller (2014). These recent studies argue and provide evidence suggestive of the endogenous nature of ATPs. They exploit either legislative exogeneity or sources of exogeneity at the level of the firm to tackle this issue.[2]

[2] While both approaches face a different set of challenges, perhaps the most heavily criticized is the approach that exploits legislative exogeneity (e.g., Catan and Kahan, 2016; Karpoff and Wittry, 2018). The findings based on this blanket approach are generally the opposite of the findings based on different sources of exogeneity/predetermination at the level of the firm.

In the context of long-term value creation from corporate innovation, Atanassov (2013) relies on the staggered passage of antitakeover laws and documents a negative relationship between takeover protection and corporate innovation. In contrast, Chemmanur and Tian (2018) rely on exogeneity in close outcomes from shareholder proposals to remove ATPs and find a positive relationship between takeover protection and corporate innovation. In the context of takeovers, Cain, McKeon, and Solomon (2017) rely on the staggered passage of antitakeover laws and find that more takeover protection results in a higher takeover premium for target firms. Instead, Cuñat, Giné, and Guadalupe (2017) rely on exogeneity in close outcomes from shareholder proposals to remove ATPs and find that less takeover protection causes both a higher takeover likelihood and a higher takeover premium. Whereas these studies rely on a single attribute of takeover protection, we use an aggregate index of takeover protection.

Relying on instrumental variables, Karpoff, Schonlau, and Wehrly (2017) find that firms with more takeover protection are less likely to be a target of a takeover attempt. Karpoff et al. find that there is no such relationship in the absence of IVs and conclude that reverse causality is the reason for the confounding results. Extending their analysis, Carline, Gogineni, and Yadav (2019) find that more predetermined takeover protection also causes a higher likelihood of management resistance to a takeover bid. These papers focus on the role of antitakeover provisions in outcomes to target firms and target shareholders whereas we focus on acquiring firms. We contend that the strategic manipulation of ATPs prior to a takeover attempt is valuable to acquiring firms as well because of the protection provided by ATPs.

H1: Firms change their takeover protection levels in anticipation of making an acquisition.

2.2 ATPs and returns to acquirer shareholders

In general, motives for acquisitions include shareholder wealth maximization and managerial self-interest. If managers use the protection provided by ATPs to undertake risky, but value-enhancing M&A, then we expect to find a positive, causal relationship between ATPs and returns to acquiring firm shareholders. Two recent studies document evidence that is partially consistent with this line of thought. Humphery-Jenner (2014) documents a negative relationship

between ATPs and wealth effects during M&A providing support to the 'empire building hypothesis'. However, he finds that a sub-set of bidding firms - hard to value bidders with greater takeover protection - experience relatively lower wealth loss. In a study of German bidding firms, Drobetz and Momtaz (2020) are the first to find a positive relationship between the wealth effect and the extent of takeover protection. They attribute this to the fact that other corporate governance arrangements in Germany are stronger than in comparison to the U.S. However, rather than being exclusively about more effective oversight, we argue that it has a lot to do with possible reverse causality/preemptive strengthening of takeover protection. Also, the findings documented in these papers are non-causal and say nothing about whether more takeover protection affects the likelihood of M&A in the first place.[3]

The premise of the managerial self-interest argument is that managers engage in M&A to increase their salaries and private benefits of control, i.e., engage in 'empire building' even if such acquisitions do not add value in the long run. Masulis, Wang and Xie (2007) find evidence consistent with this idea by showing that acquirers with more ATPs experience significantly lower announcement period abnormal stock returns. Harford, Humphrey-Jenner, and Powell (2012) document similar findings in their analysis of how entrenched managers engage in value destroying acquisitions. Both these studies use the GIM index to measure the extent of ATPs. If ATPs are used for empire building, then we expect to find a negative, causal relationship between ATPs and returns to acquiring firm's shareholders.

To summarize, the direction and magnitude of the relationship between ATPs and returns to acquiring firm's shareholders remains an open empirical question that we seek to address. However, as stated in hypothesis 1, if acquiring firms alter their ATPs prior to acquisition

[3] Humphery-Jenner (2014) relies on a single IV for a robustness test of exogeneity in the relationship between bidding firm's M&A wealth effects and ATPs. However, this IV is based upon the average GIM index for firms incorporated (but quite rarely also headquartered) within the same state as the focus firm. It does not exclude firms within the same industry as the focus firm, and it is lagged no further before years of concern than the non-instrumented measure of takeover protection. When we include it as a third IV in our analysis, a test of no over-identification suggests that it is not sufficiently exogenous with respect to M&A wealth effects. Consistent with this outcome, when we then use it as the only IV, results essentially converge to results using non-instrumented measures of takeover protection. We believe our paper provides a more robust treatment of endogeneity and extends the contributions of Humphery-Jenner (2014).

attempts, then there is no reason to believe that the effects of instrumented ATP measures on acquirer shareholder returns are the same as the effects of observed levels of ATPs. This leads to our next hypothesis.

H2: The effects of observed and instrumented levels of takeover protection on the returns to acquiring firm shareholders are different.

2.3 ATPs and the diversifying or non-diversifying nature of M&A

The protection provided by ATPs is likely more (less) effective in acquisition attempts that increase (decrease) risk from the perspective of managers' human capital. The diversifying or non-diversifying nature of M&A provides an ideal setup to examine the role of differences in managers' risk exposure on the relationship between ATPs and returns to acquiring firm shareholders. If ATPs are used to undertake risky, but value-enhancing M&A, then we expect their effect to be more positive in acquisitions that further concentrate the bidding firm in its primary industry (non-diversifying M&A). This is because, in increasing firm risk and market power, shareholders are the main beneficiaries in non-diversifying M&A. However, managers bear the downside risks resulting from anti-trust and other regulatory challenges that increase the likelihood of failed M&A and from short-term price pressures. A greater extent of ATPs is more likely mitigate some of the risks faced by acquirer management.

On the other hand, M&A that diversify the bidding from away from its primary industry (diversifying M&A) reduce firm risk and provide unwanted diversification to shareholders. However, managers are the main beneficiaries here since their human capital is otherwise undiversified (e.g., Amihud and Lev, 1981). Also, managers can undertake such acquisitions to increase their salaries and private benefits of control and to protect themselves from bad past investments. A greater extent of antitakeover provisions is more likely to enable acquirer management to engage in such value-reducing behavior. On a related note, Gormley and Matsa (2016) find that following strengthened takeover protection, firms do more M&A and especially diversifying M&A/M&A that lowers firm risk. Their bottom line is that wealth effect to acquiring firm shareholders is lower when the bidding firm has more takeover protection.

H3: The diversifying and non-diversifying nature of M&A influences the pre-emptive changes in ATPs and the returns to acquiring firm shareholders.

3. SAMPLE, VARIABLES, AND UNIVARIATE ANALYSIS

3.1 Sample

The sample used in this study is sourced from RiskMetrics dataset for the GIM index, the Securities Data Company (SDC) database for takeover bids, and the CRSP/Compustat Merged database for stock price and financial information of acquiring firms. At the outset we construct an unbalanced panel of firm years for 1993-2012 using firms covered by the CRSP/Compustat merged database. We exclude all financial firms and regulated utilities, as well as firms with more than one class of common stock. We require GIM index data from the Riskmetrics dataset are available.[4] Since Riskmetrics predominantly covers large firms, our sample is biased towards large firms compared to samples in otherwise similar M&A studies that do not use this data.

We use SDC database to identify takeover attempts by U.S. public firms between 1993 and 2012. We exclude bids that do not meet the following standard criteria: Bids must have a disclosed value, and this must be at least one percent of the CRSP value of the bidding firm six trading days before bid announcement. Furthermore, bids must be a first and successful attempt by the bidding firm to end up with in excess of a fifty percent stake in the target. However, targets can be from any industry, located anywhere, and of any corporate form.

Our final sample consists of 21,382 firm-years and 5,512 bids by 4,361 bidding firms. A temporal distribution is presented in Table 1. The overall rate at which firms are bidding firms is 20.4 percent, and the yearly rates are fairly stable throughout. We define a bid as non-diversifying if the target firm and the bidding firm share the same two-digit Standard Industrial Classification (SIC) code. The overall rate at which bids are non-diversifying bids is 56.8 percent, and the yearly rates are fairly evenly split throughout.

[4] Riskmetrics (formerly IRRC) published intermittent volumes between 1990 and 2006 which have the data required to compute the GIM Index. Following standard practice in the literature, we assume that during the years between two consecutive publications, firms have the same governance provisions as in the previous publication year (i.e., we forward fill data from previous publication year). We use the data from 2006 to forward fill until 2012 to extend the sample period by a few years.

3.2 Variable definitions

3.2.1 Instrumental variables

In order to tackle the issue of reverse causality, instrumental variables need to be capable of locking into a pre-determined component within the observed measures of takeover protection. The IVs that we rely upon *(IPO GIM index* and *HQ GIM index)* are intended to do this by constructing a pseudo GIM index for two cohorts of firms that share historically with the focus firm either the timing of an initial public offering *(IPO peers)* or the decision to place headquarters *(HQ peers)* within a certain geographical location. Given the HQ decision typically pre-dates the IPO decision and rarely gets changed thereafter, both of these decisions are likely to have been made by all of the firms in our sample many years before the years of concern, and for most of the firms many more years in the past. Karpoff et al. (2017) argue that theory and practice would suggest that IVs of this kind are capable of locking into a component of the focus firm's observed level of takeover protection that is pre-determined because of its historical connections with the peer firms. Furthermore, they argue that the IVs should have the capability to do this simultaneously because of the historical peer associations being distinct from one another.

To be able to lock in more on the pre-determined component and not on a part that has been added in the years since, we follow Karpoff et al. (2017) in excluding all peer firms from within the same industry as the focus firm. This follows from a tendency for M&A to exhibit industry waves (see Harford (2005), and the average marginal effects for the *Industry M&A* variable in Table 2), which not only makes it possible for observed levels of takeover protection for the focus firm to be partly determined by firms in the same industry, but also vice versa. Despite closing off this channel for reverse causality, we also follow Karpoff et al. (2017) in lagging the IVs many years before the years of concern.

3.2.2 Dependent and other control variables

Consistent with previous literature (e.g., Masulis et al., 2007 and Zhao, 2013), our proxy for acquirer wealth effects is cumulative abnormal returns. We present our results using a three-day window centered on the announcement date *(Announcement return (-1 to +1))*. We examine

alternate measures and event windows and find our results are qualitatively similar. Focusing on announcement period returns as opposed to future performance measures (for example, post-bid return or change in operating performance) also enables us to include all bids by the same bidding firm, albeit by including a control variable for differentiating between serial bids and non-serial bids and by clustering standard errors at the level of the bidding firm. Statistics for all bids presented in Panel B of Table 2 suggest that the mean and median announcement return is close to zero. This is consistent with what is widely documented in the literature (see Fuller, Netter, and Stegemoller, 2002). However, the interquartile range of 5.10 percentage points attests to there being significant uncertainty about the market reaction.

The other main variable *(Diversifying)*, in Panel B of Table 2, serves as both an independent variable while examining all bids (as in Morck et al, 1990) and as our dominant way of homogenizing bids to separately examine non-diversifying bids and diversifying bids. Other bid characteristics *(Serial, Cross-border, Public, and Stock only)* reported in Panel B of Table 2, are motivated by prior literature (see Karolyi, Liao, and Loureiro, 2015; Moeller and Schlingemann, 2005; Hansen and Loft, 1996; and Travlos, 1987, respectively, for the originating studies). Furthermore, since Schneider and Spalt (2019) demonstrate the importance of permitting bid size to be independent of bidding firm size, we use absolute bid size *(Value)* instead of bid size relative to bidding firm size. The remaining variables in Panels A and B of Table 2 are predominantly firm characteristics related to performance and risk. We also include structural measures related to the industry of the focus firm, one of which is lagged *(Industry concentration)* and the other is concurrent *(Industry M&A)*. We also lag firm characteristics by one year. We largely replicate variables used by Karpoff et al. (2017) because they show that many of these standard variables also matter for takeover protection. The definitions of all variables used in the study are provided in Appendix A.

3.3 Univariate analysis

To initially scrutinize the main relationships individually and to provide reference points for the multivariate analysis, we regress a binary variable that identifies firms as bidding firms

(Bidding firm) on each of the non-instrumented (i.e., *GIM index* and *GIM dictatorship*) and instrumented GIM variables (i.e., *IPO GIM index* and *HQ GIM index*) and other control variables alone. The results of these univariate probit regressions are presented in the last column of Panel A of Table 2. The results show that there is an inconsistent but *positive* relationship between the likelihood of firms being bidding firms and the non-instrumented (i.e., observed) GIM variables. However, the results for the IVs point to there being a *negative* relationship between instrumented GIM variables and the likelihood of firms being bidding firms. These opposing results provide initial support to hypothesis 1 and affirm the need to treat the observed GIM variables as suspect endogenous variables. Furthermore, it also signals a need to negate potential sample selection resulting from an analysis of takeover bids without accounting for the likelihood of firms being bidding firms in the first place.

To similarly foreshadow the part of the multivariate analysis that is concerned with the effects of ATPs on acquirer returns, we regress the announcement return on each of the non-instrumented and instrumented GIM variables and other characteristics alone. These results are presented in the last three columns of Panel B of Table 2. For all bids, the results show that there is no relationship between the announcement return and the non-instrumented GIM variables. However, the results for the IVs point to there being a *positive* causal relationship that runs from instrumented GIM index to the announcement return providing initial support to hypothesis 2. Furthermore, given that this relationship is driven by non-diversifying bids, the results also attest to our objective of separately examining non-diversifying bids and diversifying bids (hypothesis 3). For the non-instrumented GIM variables, the direction and significance, or the lack of it, might be because we are omitting the controls. This is besides other issues connected to endogeneity. However, this should not a concern for the IVs because these are plausibly exogenous. The other results across Panels A and B of Table 2 individually merit a preponderance of the controls being included in the multivariate analysis.

4. MULTIVARIATE ANALYSIS

4.1 Likelihood of firms being bidding firms

4.1.1 Non-instrumented (observed) measures of takeover protection

We begin with all firm years and examine the relationship between ATPs and the likelihood of firms being bidding firms in a given year. We first estimate a probit regression where the dependent variable is a binary variable identifying years in which firms are bidding firms *(Bidding firm (0/1))* while controlling for other firm and industry characteristics. We also include a new variable, *Rate Spread,* to serve as a proxy for the prior availability of loans to firms. Specifically, it is the prior year's average monthly interest rate in excess of the federal funds rate.[5] We use this variable to satisfy the need for an exclusion restriction in the ensuing IV analysis. The results for the non-instrumented GIM index variables, presented in columns (1) and (2) of Table 3 respectively, are similar to the univariate results. While the coefficient estimates on both *GIM index* and *GIM dictatorship* are positive, only the former is statistically significant leading us to infer that relationship is more reliably positive than negative. The multivariate results for the other firm characteristics are also similar to the univariate results. The rate spread is shown to have incremental relevance for predicting M&A, even after controlling for differences across industry years.

4.1.2 Instrumented measures of takeover protection

Under what circumstances might the effects of the non-instrumented measures of takeover protection be different from the effects when using instrumented measures? One possibility is that levels of takeover protection are deliberately altered in readiness for firms to make bids. This means that, without the benefit of IVs, it is not possible to observe the pre-determined effect because the observed levels of takeover protection are partially dependent upon the likelihood of firms being bidding firms. Karpoff et al. (2017) provide evidence in support of this possibility of reverse causality. Although not concerned with levels of takeover protection, a study by Mitchell and Lehn (1990) points to the Karpoff et al. findings as having relevance within

[5] We source this data from https://www.federalreserve.gov/releases/e2/e2chart.htm. Harford (2005) finds that M&A waves are associated with a tighter rate spread of this type, suggesting that firms tend to do more M&A during periods preceded by a greater availability of loans.

the context of our analysis. Mitchell and Lehn (1990) document that bad bidders eventually become good future targets.

The obvious implication for our analysis is that bad bidders might deliberately shore up levels of takeover protection to reduce the chances of later becoming good targets. However, this behavior might not be confined to bidders pre-disposed to bad deals. Good bidders might also seek reassurance from strengthened levels of takeover protection before announcing bids, especially for deals entailing more complexity and risk. Therefore, should this reverse causality be sufficiently strong then, similar to the findings of Karpoff et al. (2017), it might mean that when using IVs an otherwise marginally positive observed effect turns out to be a significantly negative pre-determined effect.[6]

Results using IV regressions are presented in Columns (3) and (4) of Table 4.[7] In column (3a) of Table 3, the first stage results show that the average marginal effects for the pseudo GIM index IVs are large, positive, and statistically significant. This provides strong support for the argument that the IPO and HQ peers GIM index IVs are capable of simultaneously locking into a pre-determined component within the GIM index variable. Second, the results show that the GIM index is also correlated significantly with several of the other variables. In particular, it is positively correlated with size, leverage and industry M&A and negatively correlated with liquidity and stock volatility. These correlations suggest that higher non-instrumented levels of takeover protection are generally associated with more moderate levels of firm risk and with more future M&A from within firms' industry.

[6] There are two other possibilities that might cause the observed effect of takeover protection to be different from the pre-determined effect. Both can be exacerbated by reverse causality. The first is that observed levels of takeover protection are correlated with unobservable factors in such a way, and to such an extent, that these would otherwise not cause a significant departure from the pre-determined effect. We address this issue in Section 4.4. The second is that observed levels of takeover protection are measured with error. This is more of a possibility for the GIM index variable because of it being an additive. That is, it assumes that each time another antitakeover provision is added to the corporate charter, the effect remains the same as when each of the existing provisions were added. This measurement issue, however, is addressed through a side-by-side use of the GIM dictatorship variable.

[7] Since the non-instrumented GIM index and the GIM dictatorship variables respectively are continuous and binary in nature, we use a different econometric specification for each. For the former, we use an IV probit regression with a maximum likelihood estimator. For the latter, however, we use a recursive bi-probit regression, which is less reliant on the validity of the IVs because of its simultaneous equations specification.

The second stage results presented in column (3b) of Table 3 are contrary to those documented in column 1 using non-instrumented GIM index variable. That is, raising the instrumented GIM index variable by one antitakeover provision is now predicted to reduce the likelihood of firms being bidding firms by 1.3 percentage points. This average marginal effect is significant at the five percent level and relatively large in comparison to the unconditional rate of 20.4 percent documented in Table 1. Crucially, with ninety-nine percent confidence from a Chi^2 test of exogeneity, we reject the null hypothesis that the non-instrumented GIM index variable is sufficiently exogenous. The results for the other variables are almost the same as the results in the absence of the IVs.

The results using the binary GIM dictatorship variable are presented in Columns (4a) and (4b) and are qualitatively similar to those presented in Columns (3a) and (3b). Again, based on the Chi^2 test statistic, we reject the null hypothesis that the GIM dictatorship variable is exogenous. Lastly, column (5) of Table 3 presents results of a reduced form probit model where *Bidding firm (0/1)* is regressed directly on the IVs and other controls.[8] These results are similar to those from the IV probit regression. The relationship between the likelihood of firms being bidding firms and the instrumented GIM index IVs is consistently negative. Given this effect is negative, our findings certainly do not suggest that higher levels of takeover protection are associated with entrenched managers being more likely to be active in M&A. Stated differently, should managerial motives be primarily behind M&A then higher levels of takeover protection are less likely to lead to this opportunistic behavior occurring in the first place. This is contrary to the inferences gleaned from the findings of Masulis et al. (2007) and Harford et al. (2012)

To summarize, since the instrumented effect is essentially the reverse of the non-instrumented effect (and providing strong support to hypothesis 1), it is more probable that the latter effect is driven by reverse causality. That is, firms that end up being bidding firms tend to strengthen levels of takeover protection beforehand. The first stage results for the variables

[8] Angrist and Pischke (2009 p. 213) suggest that it would be questionable were we not able to indirectly trace any causal effect by regressing the outcome variable directly on the IVs in place of the instrumented variable.

commonly associated with firm risk suggest that this pre-emptive behavior is typical amongst firms with more moderate risk. Specifically, the positive average marginal effects for size, stock return and leverage and the negative marginal effects for market-to-book and sales growth suggest that large, profitable firms with fewer growth opportunities are more likely to be associated with higher non-instrumented measures of takeover protection. Such firms are also characterized by low or moderate risk. In turn, this possibly suggests that it is more a case of value maximizing bidders seeking reassurance from strengthened levels of takeover protection before announcing bids, and less a case of value destroying bidders deliberately shoring up levels of takeover protection to reduce the chances of later becoming attractive targets. In the ensuing analysis, we restrict the sample to takeover bids and examine the wealth implications to acquiring firm shareholders.

4.2 M&A wealth effects for shareholders of bidding firms

4.2.1 Non-instrumented (observed) measures of takeover protection

The univariate results suggest that while there is no relation between non-instrumented GIM variables and the announcement return, the latter is significantly related, unconditionally, to many of the other firm and bid characteristics. Should the non-instrumented GIM variables be correlated with any of these variables then a multivariate analysis might generate a different set of inferences compared to those from univariate analysis. To address this issue, we start with an ordinary least square regression of the announcement return on non-instrumented GIM variables while controlling for other firm and bid characteristics.

Results using all bids are presented in columns 1 and 2 of Table 4 and still show no significant relationship between the announcement return and the non-instrumented *GIM index* and *GIM dictatorship* variables, respectively. For instance, the average marginal effects for *GIM index* suggest a 0.026 percentage point higher announcement period returns when one more provision is added to the GIM index. Given the relatively high standard error associated with this estimate and the finding that average announcement period returns for all bids is close to zero (Panel B of Table 2), the wealth effect seems economically irrelevant. The same is true when we

analyze sub-samples of non-diversifying and diversifying bids separately. These results are presented in columns (3) - (4) and columns (5) - (6) of Table 4, respectively.

Consistent with the univariate results presented in Table 2, it is still the case that the announcement return is significantly related to some of the other firm and bid characteristics *(Serial, Public, Stock only, Size, and Leverage)*; and with similar to before differences between the non-diversifying bids and the diversifying bids. However, a few firm and bid characteristics *[Value, Market-to-book, Sales growth, ROA, and Industry M&A]* now lose significance while two more *[Diversifying and Industry concentration]* now gain significance in models with all bids and diversifying-bids respectively. First, the average marginal effects for *Diversifying* variable in columns (1) and (2) suggest that announcement return is 0.41-0.42 percentage points lower, on average, when bidding firms announce diversifying bids, relative to when bidding firms announce non-diversifying bids. This results is consistent with the findings of extant literature (e.g., Morck et al. 1990; Hoechle et al. 2012). Second, the average marginal effects for *Industry Concentration* variable in columns (3) and (4) suggest that the announcement return is significantly higher when bidding firms from more concentrated industries undertake non-diversifying bids. This result suggests that the wealth effect from non-diversifying M&A is sourced more from a potential exploitation of operational synergies (lower costs) and/or market power (higher prices), both of which motives are beneficial for shareholders of bidding firms (see Eckbo, 1983).

4.2.2 Instrumented measures of takeover protection

The multivariate regressions using IVs for the GIM variables are presented in columns (1) and (2) of Table 5.[9] For complete consistency, we also present reduced form results in column (3)

[9] Since the non-instrumented GIM index variable is continuous, whereas the non-instrumented GIM dictatorship variable is binary, it is necessary for us to again use a different econometric specification for each. For the former variable, we use an IV linear regression with a two stage least squares estimator. For the latter variable, however, we here follow a specification suggested by Angrist and Pischke (2009 pp. 190-192) and use an IV linear regression supplemented beforehand with a probit regression. This specification is less reliant on IV validity and additivity assumptions because of the intermediate probit regression, which serves a purpose similar to, but without completely replacing, the first stage of a conventional IV regression. By intermediately 'instrumenting' for the GIM dictatorship variable with the pseudo GIM index variables, we obtain an 'instrumented' variable that is probabilistic. We then use this variable as a single IV in an otherwise conventional IV regression. Unlike the conventional IV linear regression, however, this non-conventional IV linear regression requires us to bootstrap the standard errors.

of Table 5. Column (1a) of Table 5 presents results of the first stage IV linear regression with the non-instrumented GIM index as the dependent variable. First and foremost, these results show that the average marginal effects for the pseudo GIM index IVs, *IPO GIM index* and *HQ GIM index*, are almost identical to those documented using a sample of all firm-years (i.e., column 3(a) of Table 4). Second, the non-instrumented GIM index variable is negatively correlated with the liquidity and stock volatility, which are commonly associated with higher firm risk. This variable is also positively correlated with the diversifying and tangibility variables, which, in addition to the characteristics discussed section 4.1.2, are commonly associated with lower firm risk.

Column (1b) of Table 5 presents the second stage results. Unlike for the non-instrumented GIM index variable before (see Table 4), the announcement return is positively related to the instrumented GIM index variable. That is, the announcement return is now predicted to be 0.52 percentage points higher, on average, when bidding firms raise the GIM index by one antitakeover provision. This marginal effect is significant at the one percent level, and relatively large in comparison to the unconditional interquartile range of 5.2 percentage points in our sample (Panel B of Table 2). With ninety-nine percent confidence from a Chi^2 test of exogeneity, presented at the bottom of Table 5, we reject the null hypothesis that the non-instrumented GIM index variable is sufficiently exogenous when the analysis is restricted to bidding firm years.[10] The average marginal effects for the other variables are generally similar to those documented using non-instrumented GIM variables.

Columns (2a) and (2b) of Table 5 present results pertaining to GIM dictatorship variable. These results, including the test statistics, are consistent with the results from columns 1(a) and 1(b) discussed above. In terms of economic relevance, the announcement return is predicted to be higher by 3.14 percentage points for GIM dictatorship firms. Lastly, Column (3) of Table 5 presents results of a reduced form regression. Again, these results are consistent with those

[10] Also, the statistics at the bottom of Table 5 for assessing the partial significance (F) and explanatory power (R^2) of the IVs, in combination, far exceed levels below which the validity of the pseudo GIM index variables might be questioned (see Angrist and Pischke, 2009, p. 213). Furthermore, from a Chi^2 test of no over-identification also at the bottom of Table 5, we fail to reject the null hypothesis that the IPO and HQ peers GIM index IVs are sufficiently exogenous with respect to the announcement return.

presented above. The relationship between the announcement return and the pseudo GIM index IVs is reliably positive and economically meaningful.

Collectively, the analysis using IVs suggests that more shareholder wealth is created from M&A when bidding firms have higher levels of takeover protection. This finding provides support to Hypotheses 2, which states that the effects of observed and instrumented levels of takeover protection on the returns to acquiring firm shareholders are different, and is the opposite of what is suggested by the findings of Masulis et al. (2007) and Harford et al. (2012). Again, it is more probable that the (non-existent) non-instrumented effect is affected by reverse causality. That is, firms have a tendency well in advance of announcing M&A to strengthen levels of takeover protection, but here the suggestion is that this is because of uncertainty about how favorably the market will react to the M&A.

The first stage regression results presented in columns (1a) and 2(a) of Table 5 also suggest that this pre-emptive behavior is typical amongst bidding firms more likely to do diversifying bids. Diversifying bids are generally considered to be less risky than non-diversifying bids (see Amihud and Lev, 1981; Gormley and Matsa, 2016). The positive correlation between the non-instrumented GIM variables and the diversifying variable is used by Gormley and Matsa (2016) to further highlight that measures of takeover protection are likely to be endogenous at the firm level. However, our findings suggest that this correlation is less about a higher GIM index steering bidding firms toward diversifying bids, and more about a higher GIM index steering bidding firms away from diversifying bids, by affording bidders greater reassurance from already strengthened levels of takeover protection and thereby fostering more wealth creation from riskier M&A. In this regard, although we are observing actual diversifying bids, some actual non-diversifying bids might otherwise have been diversifying bids had there been no preemptive strengthening of takeover protection. Furthermore, after accounting for this correlation within the first stage regression, the second stage results show that diversifying bids create even less wealth than non-diversifying bids than when evaluated in the absence of IVs (i.e., when compared to the average marginal effects for *Diversifying* in Table 4).

4.3 M&A wealth effects for shareholders in diversifying and non-diversifying bids.

Our results so far suggest that when all bids are considered, the causal effect of instrumented measures of takeover protection on announcement returns is independent of the diversifying effect. However, repeating this analysis using sub-samples of diversifying and non-diversifying bids will enable us to examine whether the causal effect and the associated reverse causality has more relevance for certain types of bids. The results are presented in Table 6. Other than separating non-diversifying bids and diversifying bids, these regressions have the same specifications, and are in the same order, as the regressions for all bids together presented in Table 5. The same causal effect, although with larger magnitude, and reverse causality implications are clearly evident from the results for non-diversifying bids, but there is no evidence of a causal effect and reverse causality from the results for diversifying bids (supporting hypothesis 3).[11]

What does this suggest about diversifying bids? First, there is no systematic shoring up of levels of takeover protection by bad bidders beforehand to reduce the chances of later becoming good targets. Second, acquiring firm's takeover protection does not matter to the market when evaluating wealth effects from diversifying bids. Third, while diversifying bids create less wealth for shareholders than non-diversifying bids, suggesting stronger managerial motives for diversifying bids, this diversifying effect is not made worse by bidding firms having higher levels of takeover protection.

4.4 Likelihood of firms being bidding firms *and* wealth effects for shareholders

The causal effects of the instrumented GIM variables on the announcement return have the potential to be biased unless we jointly account for the mirror effects on the likelihood of firms being bidding firms in the first place. According to Certo, Busenbark, Woo, and Semadeni (2016), this joint effect condition and two further conditions are necessary for sample selection bias to

[11] For both diversifying and non-diversifying bids, the partial F and R^2 statistics and Chi^2 test of no over-identification provide strong support for the validity of the IVs. Only for diversifying bids, however, we fail to reject the null hypotheses from the Chi^2 tests that the non-instrumented GIM variables are sufficiently exogenous.

be a possibility. First, unobservable factors that affect the likelihood of firms being bidding firms also effect the announcement return. These factors might be connected to unobservable aspects of synergies, agency costs, and hubris/overconfidence. Second, the instrumented GIM variables need to be correlated with the unobservable factors.

We proxy for the unobservable factors by following a method prescribed by Wooldridge (2010, pp. 809-813) and compute the inverse Mills ratio *(Bidding-firm lambda)* from the reduced form IV probit regression for the likelihood of firms being bidding firms (column (5) of Table 3). By doing so, we place reliance upon the rate spread variable to satisfy the need for an exclusion restriction. While there was good reason to presuppose that this variable is an important general determinant of the likelihood of firms being bidding firms, there is no reason to believe that the rate spread has any relevance for explaining the announcement return.[12] Results are presented in Table 7 for all bids and Table 8 for non-diversifying bids and diversifying bids separately.

The results in Table 7 show that for all bids together there is no relationship between either the non-instrumented GIM variables or the announcement return and the lambda variable. Although slightly reduced in magnitude throughout, the causal effect of instrumented GIM variables on announcement returns is still clearly substantiated. Similar conclusions can be drawn from the results presented in Table 8. Also, for diversifying bids, the average marginal effects for *Bidding-firm lambda* suggests that sample selection bias is not the reason for the absence of causal effect between takeover protection and announcement returns.

However, the marginal effect of the lambda variable on announcement return is more reliably *positive* for non-diversifying bids and more reliably *negative* for diversifying bids. While this difference has no real bearing on the instrumented GIM variables, it does affect some of the other variables. In particular, the well documented negative size effect (e.g., Moeller et al., 2004) gets reduced for non-diversifying bids and increased for diversifying bids. One possible explanation is that the size effect is partially affected by unobservable aspects of synergies for

[12] This method requires us to allocate the same lambda to multiple bids from the same firm within the same year. Furthermore, it requires us to bootstrap the standard errors throughout because of manual inclusion of the lambdas.

non-diversifying bids (resulting in a less negative effect) and by unobservable aspects of agency costs or hubris/overconfidence for diversifying bids (resulting in a more negative effect). The loss of significance for the industry concentration variable for non-diversifying bids, which previously had a positive effect on the announcement return, is also consistent with the lambda variable being more connected to unobservable aspects of synergies.

5. FURTHER ANALYSIS AND ROBUSTNESS

5.1 Binary measure of announcement return

To ensure that our results are not driven by the distribution of announcement return, we replace this variable with a binary variable identifying bids for which the announcement return is positive.[13] Results are presented in Table B1 of the online Appendix and show that the causal effect is again clearly substantiated, but again only for non-diversifying bids. For the instrumented GIM index variable in column (1b) of Table B1, non-diversifying bids are predicted to be 3.50 percentage points more likely to generate positive announcement return when bidding firms raise the GIM index by only one antitakeover provision. Furthermore, for the instrumented GIM dictatorship variable in Column (2b) of Table B1, non-diversifying bids are predicted to be 21.81 percentage points more likely to generate positive announcement return when bidding firms are GIM dictatorship firms. These average marginal effects are relatively large in comparison to the unconditional rate of 54.18 percent at which all bids together generate positive announcement return.

5.2 Alternate industry classification

It is possible that our results are sensitive to our reliance on Standard Industrial Classification to differentiate bids into diversifying and non-diversifying groups. Therefore, we regenerate the diversifying, industry concentration, and industry M&A variables using the Fama

[13] Since the announcement return is no longer in continuous form, the only other modifications that we make here are replacing the IV linear regression with a conventional IV probit regression for use with the GIM index variable, and to replace the non-conventional IV probit regression with a recursive bi-probit regression for use with the GIM dictatorship variable.

and French forty-nine industries.[14] Results are presented in Table B2 of the online Appendix for non-diversifying bids and diversifying bids separately and are qualitatively similar to our main findings.

5.3 Timing of bids

While the industry M&A variable is such that it serves to control for both observable and unobservable differences across industry years, the announcement return and its relationship with the GIM variables might also be affected by unobservable differences across years. We therefore assess the robustness or our results by including a of a full set of year indicators *(Year effects)* and a binary variable identifying all years after 2002 *(Post-SOX)*. Results are presented in Table B3 of the online Appendix (columns (1) and (4) with *Year effect* and columns (2) and (5) with *Post-SOX* variable). We do not tabulate the first stages of these IV linear regressions for the sake of brevity. We also cut the sample period back from 2012 to 2009 to assess whether our findings are a result of a longer forward fill of the final GIM index data in 2006. Results are presented in columns (3) and (6) of Table B3. For each modification, the results show that the causal effect is still clearly evident, but again only for non-diversifying bids.

5.4 Homogenizing bids

Fuller et al. (2002) emphasize the importance of homogenizing bids to facilitate a cleaner examination of how other bid characteristics affect wealth effects for shareholders of bidding firms. On a related note, bid characteristics are likely to be both endogenously and simultaneously determined. Although these characteristics primarily serve as controls in our analysis, endogeneity might still be a concern, especially if it is with respect to levels of takeover protection. As it happens, no bid characteristics were found to be correlated with the non-instrumented GIM

[14] We source these industries from https://mba.tuck.dartmouth.edu/pages/faculty/ken.french/Data_Library/det_49_ind_port.html. With financials and regulated utilities already excluded, this results in 43 bidding firm industries and 43.47 percent diversifying bids. Over an equivalent time period, the numbers for Standard Industrial Classification are 57 bidding firm industries and 41.45 percent diversifying bids. We also replace the IPO and HQ peers GIM index variables with the equivalent instrumental variables used by Karpoff et al. (2017) because their cohorts exclude firms within the same Fama and French forty-nine industry as the focus firm. However, since the sample period used by Karpoff et al. ends in 2008, it is necessary for us to restrict the sample period to 1996-2009. These are the only modifications that we make here.

variables (see results in column 1(a) of Table 5), apart from the diversifying variable based on which we have already homogenized bids. However, to be certain our main results are not affected by endogenous bid characteristics, we follow Gormley and Matsa (2016) and remove potentially endogenous controls, but in a way that also adheres to the idea of homogenizing bids. That is, we first remove non-serial bids (leaving serial bids, similar to Fuller et al. (2002)), followed separately by public bids (leaving private and subsidiary bids combined), and then separately again by stock only bids (leaving all other methods of payment combined). Consistent with the M&A literature, the serial, public, and stock only variables were shown to be particularly important sources of bid heterogeneity for the announcement return. Lastly, we remove all these bid types at once and together with removing both cross-border bids (leaving domestic bids) and mega bids.[15]

Second stage IV results are presented in Table B4 of the online Appendix. For each modification, the results show that the causal effect is still clear for non-diversifying bids, but that there is still insufficient evidence of a causal effect for diversifying bids. Again, from results not tabulated, the same is true when we use the IVs for the GIM dictatorship variable, and when the IV linear regressions are run in reduced form. Interestingly, for the first time in the analysis, the value and size variables have some simultaneous significance for the announcement return, and in opposite directions consistent with the findings of Schneider and Spalt (2019) for bids with positive announcement returns. This result is more prevalent, however, for non-diversifying bids, which in turn is consistent with our findings that these bids create more wealth for shareholders of bidding firms when bidding firms have higher levels of takeover protection.

5.5 Other robustness

[15] With regard to mega bids, we follow Bayazitova, Kahl, and Valkanov (2012) and remove the top one percent of all bids together based on the value variable. Like Moeller, Schlingemann, and Stulz (2005), Bayazitova et al. (2019) find that the largest bids destroy the most wealth for shareholders of bidding firms. According to Schneider and Spalt (2019), however, larger bids (larger bidding firms) not only increase (decrease) wealth destruction for bids with negative net present value, but also increase (decrease) wealth creation for bids with positive net present value.

Our main results are also robust to a plethora of other modifications, the results from which are not tabulated. First, our findings are robust to the length of the event window or the estimation method. We get consistent results from replacing the three-day cumulative announcement return (-1 to +1) with a five-day cumulative announcement return (-2 to +2) or the return on the announcement date (0). Second, we get consistent results from replacing the market model adjusted returns with market adjusted returns absent an estimation period and from replacing the equally weighted market index with a value weighted market index.

Third, the causal effect findings are not peculiar to the GIM measures for levels of takeover protection. We get consistent results from replacing the GIM measures with an equivalent index and IVs for the eighteen antitakeover provisions covered by the GIM index after excluding the other six provisions included in an entrenchment index proposed by Bebchuk, Cohen, and Ferrell (2009). This suggests that the causal effect findings extend beyond possibly the six most potent antitakeover provisions. Related to this, Karpoff et al. (2017) find that firms are less likely to become future takeover targets when instrumented levels of the eighteen antitakeover provisions are higher, and therefore not just when the instrumented GIM index is higher.

6. CONCLUSION

Our study is substantively the first to causally reevaluate the relationship between the wealth effect from M&A for shareholders of the bidding firm and the extent of its takeover protection. Using instrumental variables whose validity is strongly established in this paper as well as by extant literature, we exploit sources of exogeneity at the level of the bidding firm and find substantive evidence to suggest that more takeover protection causes more wealth creation, and to an extent that is economically meaningful. Although this is evident for among all M&A, it is only evident for among M&A that further concentrate the bidding firm in its primary industry when separately examine non-diversifying M&A and diversifying M&A. However, we also find no evidence of a negative relationship for among M&A that diversifies the bidding firm away from its primary industry. These findings are robust to accounting for the likelihood of a firm being a bidding firm in a given year.

Consistent with the notion that non-diversifying M&A are a riskier proposition for managers of the bidding firm, we find that there is a tendency for the firm to increase the extent of its takeover protection well in advance of announcing M&A when there is more uncertainty about how favorably the market will initially react. This preemptive behavior is predominantly associated with firms that are characterized as having lower risk and with bidding firms that are otherwise more likely to do diversifying M&A.

Our findings are the first for the U.S. institutional setting to suggest that ATPs have the potential to incentivize managers to make better acquisition decisions for shareholders and our findings are the first for any institutional setting to suggest that this positive effect on value creation comes from a pursuit of more focused acquisitions, rather than from diversifying acquisitions that are more opportune for satisfying managerial risk-reducing motives. Contrary to related studies of M&A by U.S. firms, our findings provide no support for the notion that more takeover protection exacerbates a problem of managerial entrenchment, but plenty of support for the notion that more takeover protection mitigates a problem of managerial myopia.

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Appendix A: Variable Definitions

Variable	Definition
Ann. return [-1 to +1]	Cumulative market-model-adjusted return for the bidding firm over the three trading days centered on the announcement date [0]. The market model uses an equally weighted index and is estimated over the two-hundred trading days ending six trading days before the announcement date. We require at least one-hundred non-missing returns for the bidding firm. Sources: Securities Data Company for the announcement date; Center for Research in Security Prices for the returns.
GIM index	Continuous variable that for a given year is equal to the number of antitakeover provisions out of the twenty-four antitakeover provisions constituting the Gompers, Ishii, and Metrick (2003) index for the focus firm in the first preceding year. Source: RiskMetrics.
GIM dictatorship	Dummy variable that for a given year is equal to one when the GIM index for the focus firm is greater than the median GIM index for all firms in the given year and zero otherwise.
IPO GIM index	Calculated as the sum of the average values of individual antitakeover provisions, constituting the GIM index, among peer firms. This value is then lagged by three years. The peer firms share the same year of initial public offering (IPO), but not the same primary industry (based on Standard Industrial Classification at the historic two-digit level in the first preceding year), as the focus firm. Requires at least three peer firms. Sources: Center for Research in Security Prices for start years for the year of IPO; Compustat for the industries; RiskMetrics for the antitakeover provisions. Similar to an instrumental variable constructed by Karpoff, Schonlau, and Wehrly (2017).
HQ GIM index	Similar to IPO GIM index but with a different set of peer firms. The peer firms share the same headquarters location (based on a geographical radius of one-hundred miles within the same State), but not the same primary industry (based on Standard Industrial Classification at the historic two-digit level in the first preceding year), as the focus firm. Requires at least three peer firms. Sources: Compustat for Zone Improvement Plan codes and the industries; https://www.aggdata.com/free/united-states-zip-codes for latitudes and longitudes; RiskMetrics for the antitakeover provisions. Similar to an instrumental variable constructed by Karpoff, Schonlau, and Wehrly (2017).
Serial	Dummy variable that for a given bid is equal to one when this is at least the second bid to be announced by the bidding firm within the preceding one-thousand-and-ninety-five calendar days and zero otherwise. Source: Center for Research in Security Prices/Compustat for identifying the bidding firm across time; Securities Data Company for any preceding bids.
Diversifying	Dummy variable that for a given bid is equal to one when the bidding firm and the target do not share the same primary industry (based on Standard Industrial Classification at the historic two-digit level and in the first preceding year for the bidding firm) and zero otherwise. Sources: Compustat for the bidding firm; Securities Data Company for the target.
Cross-border	Dummy variable that for a given bid is equal to one when the target is incorporated outside the United States and zero otherwise. Source: Securities Data Company.
Public	Dummy variable that for a given bid is equal to one when the target is a publicly-traded entity and zero when the target is a privately-held entity or subsidiary of another entity. Source: Securities Data Company.

Variable	Definition
Stock only	Dummy variable that for a given bid is equal to one when the consideration is to be paid via only an exchange of stock and zero otherwise. Source: Securities Data Company.
Value	Continuous variable that for a given bid is equal to the value at the announcement date, expressed in millions of dollars and sample-end real terms. Source: Securities Data Company for the value; Compustat for inflating.
Size	Continuous variable that for a given year is equal to the book value of assets for the focus firm in the first preceding year, expressed in millions of dollars and sample-end real terms. Source: Compustat.
Leverage	Continuous variable that for a given year is equal to the ratio of long-term debt to book value of assets for the focus firm in the first preceding year. Source: Compustat.
Market-to-book	Continuous variable that for a given year is equal to the market-to-book ratio of assets for the focus firm in the first preceding year. Source: Compustat.
Tangibility	Continuous variable that for a given year is equal to the ratio of tangible assets to book value of assets for the focus firm in the first preceding year. Source: Compustat.
Liquidity	Continuous variable that for a given year is equal to the ratio of working capital to book value of assets for the focus firm in the first preceding year. Source: Compustat.
Sales growth	Continuous variable that for a given year is equal to the proportionate growth in sales for the focus firm between the first and second preceding years. Source: Compustat.
ROA	Continuous variable that for a given year is equal to the ratio of operating profit before depreciation to book value of assets for the focus firm in the first preceding year. Source: Compustat.
Stock return	Continuous variable that for a given year is equal to the proportionate daily-cumulative equally-weighted-index-adjusted return for the focus firm over the first preceding year. Requires at least one-hundred-and-thirty non-missing returns for the focus firm. Source: Center for Research in Security Prices.
Stock volatility	Continuous variable that for a given year is equal to the standard deviation of proportionate daily equally-weighted-index-adjusted returns for the focus firm within the first preceding year. Requires at least one-hundred-and-thirty non-missing returns for the focus firm. Source: Center for Research in Security Prices.
Industry concentration	Continuous variable that for a given year is equal to the sum of the squared proportions of total sales across the primary industry (based on Standard Industrial Classification at the historic two-digit level) for the focus firm in the first preceding year. Requires at least four firms (including the focus firm) in the industry. Source: Compustat.
Industry M&A	Continuous variable that for a given year is equal to the total value of deals (at completion) across the primary industry (based on Standard Industrial Classification at the historic two-digit level in the first preceding year) for the focus firm as a proportion of the total value of deals across all primary industries in the given year. Requires at least four firms (including the focus firm) in each industry. Sources: Compustat for the industries; Securities Data Company for the values.

Table 1: Distribution of the sample

This table presents a temporal distribution of the sample. Column 2 presents distribution of firms in the CRSP/Compustat merged database for which data from Riskmetrics are available. Column 3 presents unique bidding firms. Columns 5 and 6 present a distribution of all bids and non-diversifying bids. Bids are classified as non-diversifying if the acquirer and the target share the same two-digit SIC code.

Column	(2)	(3)	(4)	(5)	(6)	(7)
Year	All firms	Bidding firms	Percentage	All bids	Non-diversifying bids	Percentage
1993	753	118	15.7	151	67	44.4
1994	854	150	17.6	207	104	50.2
1995	845	171	20.2	220	113	51.4
1996	899	196	21.8	261	136	52.1
1997	876	194	22.2	258	134	51.9
1998	873	208	23.8	295	155	52.5
1999	1,193	275	23.1	352	222	63.1
2000	1,070	228	21.3	289	173	59.9
2001	1,052	201	19.1	259	177	68.3
2002	1,008	196	19.4	248	156	62.9
2003	1,264	262	20.7	324	186	57.4
2004	1,243	285	22.9	359	226	63.0
2005	1,344	308	22.9	372	218	58.6
2006	1,279	301	23.5	359	199	55.4
2007	1,306	276	21.1	355	194	54.7
2008	1,203	206	17.1	256	157	61.3
2009	1,134	156	13.8	177	105	59.3
2010	1,099	209	19.0	265	157	59.3
2011	1,064	202	19.0	243	126	51.9
2012	1,023	219	21.4	262	128	48.9
Overall	21,382	4,361	20.4	5,512	3,133	56.8

Table 2: Variables and univariate analysis

This table presents descriptive statistics and univariate analysis. The sample of bids and firm years (bidding and non-bidding) is described in Table 1 and the main variables are defined in Appendix A. Panel A presents statistics for all firm years and Panel B presents statistics on bids. The marginal effects in Panel A are from probit regressions for the likelihood of investing in mergers and acquisitions *(Bidding firm (0/1))* on each individual other variable. The dependent variable in Panel A, *Bidding firm (0/1)*, is a dummy variable that equals to one when the focus firm is a bidding firm in the given year and zero otherwise. The marginal effects in Panel B are from linear regressions of announcement return *(Ann. return [-1 to +1])* on each individual other variable. Significance levels in both panels are generated using cluster robust standard errors at the firm level. The marginal effects for *Value* & *Size* are after transforming these variables into natural logarithms. ***, **, & * denote one-, five-, and ten-percent significance respectively.

Panel A: Firm years

	Descriptive statistics					Univariate analysis Bidding firm
Variable	**Mean**	**25th percentile**	**50th percentile**	**75th percentile**	**Observations**	**Marginal effect**
GIM index	9.0	7.0	9.0	11.0	21,382	0.0034**
GIM dictatorship	0.423				21,382	0.0104
IPO GIM index	9.0	8.2	8.9	9.9	21,256	-0.0022
HQ GIM index	9.1	8.5	9.1	9.7	21,060	-0.0094**
Size	5,647.1	479.3	1,221.2	3,568.7	21,367	0.0143***
Leverage	0.180	0.024	0.162	0.282	21,364	-0.0199
Market-to-book	1.934	1.204	1.549	2.174	21,346	0.0080***
Tangibility	0.552	0.261	0.470	0.771	21,248	-0.0884***
Liquidity	0.225	0.070	0.204	0.354	21,367	0.0091
Sales growth	0.088	-0.029	0.048	0.142	21,340	0.0047
ROA	0.133	0.088	0.135	0.187	21,302	0.1364***
Stock return	-0.168	-0.388	-0.145	0.078	21,365	0.0499***
Stock volatility	0.025	0.016	0.022	0.030	21,365	-1.9009***
Industry concentration	0.107	0.055	0.074	0.129	21,371	-0.3286***
Industry M&A	0.053	0.005	0.026	0.075	21,382	0.3442***

Table 2 (continued)

Panel B: Bids								
						Univariate analysis		
						Ann. return [-1 to +1]		
	Descriptive statistics – All bids					All bids	Non-diversifying bids	Diversifying bids
Variable	Mean	25th percentile	50th percentile	75th percentile	Observations	Marginal effect	Marginal effect	Marginal effect
Ann. return [-1 to +1]	0.372	-2.141	0.385	2.963	5,506			
GIM index	9.2	7.0	9.0	11.0	5,512	0.0137	0.0339	-0.0038
GIM dictatorship	0.442				5,512	-0.0621	0.1032	-0.2287
IPO GIM index	9.0	8.2	8.8	9.9	5,477	0.1790**	0.2997***	0.0477
HQ GIM index	9.0	8.4	9.0	9.7	5,431	0.2285**	0.2852*	0.1563
Serial (0/1)	0.653				5,512	-0.4162**	-0.3349	-0.5224*
Diversifying (0/1)	0.432				5,512	-0.2150		
Cross-border (0/1)	0.207				5,512	-0.0554	0.0396	-0.1897
Public (0/1)	0.240				5,512	-2.3266***	-2.6082***	-1.9508***
Stock only (0/1)	0.106				5,512	-1.5895***	-1.9554***	-1.0627*
Value	1,035.8	54.2	165.3	505.4	5,512	-0.3784***	-0.4030***	-0.3582***
Size	5,895.6	614.6	1,528.6	3,971.5	5,510	-0.4234***	-0.4547***	-0.3827***
Leverage	0.183	0.042	0.169	0.279	5,509	0.8269	-0.2563	2.5838**
Market-to-book	2.030	1.312	1.646	2.218	5,509	-0.1840	-0.1190	-0.4180***
Tangibility	0.493	0.206	0.383	0.681	5,495	0.1795	0.0380	0.4009
Liquidity	0.223	0.077	0.200	0.349	5,510	0.5246	1.2500*	-0.5144
Sales growth	0.107	-0.014	0.069	0.184	5,506	-0.9889***	-0.9927**	-1.0529
ROA	0.141	0.098	0.140	0.186	5,503	-2.6412**	-2.2364	-3.5458
Stock return	-0.117	-0.333	-0.104	0.109	5,510	-0.3225	-0.1937	-0.5283
Stock volatility	0.024	0.016	0.021	0.029	5,510	6.4476	1.4004	12.4425
Industry concentration	0.094	0.053	0.069	0.110	5,509	1.1375	2.5360	0.5350
Industry M&A	0.061	0.011	0.040	0.083	5,512	-3.6319***	-3.1580*	-5.6735**

Table 3: Multivariate analysis without instrumental variables: wealth effect from all, non-diversifying, and diversifying takeover bids.

The regressions are based on a sample of 5,512 takeover bids made by U.S. publicly traded firms from 1993-2012. The dependent variable in all models, *(Ann. return [-1 to +1])*, is announcement period abnormal returns calculated as cumulative abnormal returns from Days – 1 to + 1 with Day 0 being the announcement date. Columns (1) and (2) present results using the full sample of bids. Columns (3) and (4) [columns (5) and (6)] present results using a sub-sample of non-diversifying [diversifying] bids. Bids are classified as non-diversifying if the acquirer and the target share the same two-digit SIC code. Please refer to Appendix A for a description of all variables. Robust standard errors, clustered at the firm level, are presented in parenthesis. Overall-model statistics (F & R^2) are at the bottom of the table. ***, **, & * denote one-, five-, and ten-percent significance respectively.

	All bids		**Non-diversifying bids**		**Diversifying bids**	
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
Variables	**Ann. return [-1 to +1]**	**Ann. return [-1 to +1]**	**Ann. return [-1 to +1]**	**Ann. return [-1 to +1]**	**Ann. return [-1 to +1]**	**Ann. return [-1 to +1]**
GIM index	0.0263		0.0449		-0.0096	
	(0.0335)		(0.0423)		(0.0540)	
GIM dictatorship (0/1)		0.0017		0.2163		-0.3340
		(0.1764)		(0.2258)		(0.2897)
Serial (0/1)	-0.3680*	-0.3655*	-0.2696	-0.2678	-0.5094*	-0.5006
	(0.1946)	(0.1946)	(0.2432)	(0.2434)	(0.3085)	(0.3088)
Diversifying (0/1)	-0.4187**	-0.4075**				
	(0.1858)	(0.1863)				
Cross-border (0/1)	-0.2115	-0.2077	-0.2358	-0.2438	-0.1846	-0.1840
	(0.1782)	(0.1786)	(0.2423)	(0.2431)	(0.2690)	(0.2696)
Public (0/1)	-1.9590***	-1.9577***	-2.2872***	-2.2916***	-1.5114***	-1.5124***
	(0.2520)	(0.2520)	(0.3233)	(0.3237)	(0.3796)	(0.3792)
Stock only (0/1)	-0.8819**	-0.8829**	-1.1781**	-1.1758**	-0.3699	-0.3906
	(0.3857)	(0.3859)	(0.4956)	(0.4961)	(0.6048)	(0.6035)
ln(Value)	0.1235	0.1242	0.1795	0.1793	0.0819	0.0812
	(0.0993)	(0.0993)	(0.1282)	(0.1282)	(0.1530)	(0.1533)
ln(Size)	-0.4407***	-0.4393***	-0.4500***	-0.4482***	-0.4507***	-0.4485***
	(0.1032)	(0.1031)	(0.1339)	(0.1339)	(0.1646)	(0.1647)
Leverage	0.7168	0.7140	-0.3913	-0.3882	2.2176**	2.2004**
	(0.6879)	(0.6878)	(0.8230)	(0.8235)	(1.0846)	(1.0827)
Market-to-book	-0.0296	-0.0325	-0.0046	-0.0082	-0.1917	-0.1962
	(0.1449)	(0.1448)	(0.1613)	(0.1608)	(0.1934)	(0.1933)
Tangibility	-0.0611	-0.0385	0.0593	0.0682	-0.2120	-0.1733
	(0.2798)	(0.2815)	(0.3492)	(0.3522)	(0.4606)	(0.4604)
Liquidity	-0.4915	-0.5251	0.3749	0.3844	-1.6060	-1.7403*
	(0.6740)	(0.6745)	(0.8904)	(0.8905)	(1.0317)	(1.0320)
Sales growth	-0.4790	-0.4884	-0.4847	-0.4883	-0.3174	-0.3176
	(0.3474)	(0.3480)	(0.4229)	(0.4234)	(0.6343)	(0.6381)
ROA	-1.4773	-1.5019	-1.2691	-1.2476	-0.7334	-0.7593
	(1.3048)	(1.3045)	(1.4682)	(1.4734)	(2.5560)	(2.5564)
Stock return	-0.0555	-0.0560	-0.0122	-0.0154	-0.1754	-0.1925
	(0.2822)	(0.2823)	(0.3752)	(0.3765)	(0.4245)	(0.4244)
Stock volatility	-3.6487	-4.6455	-4.8656	-5.3009	-0.7235	-2.2609
	(13.6272)	(13.6675)	(16.1696)	(16.2480)	(25.4940)	(25.4143)
Industry concentration	1.2992	1.2753	3.1272**	3.1527**	0.2674	0.1787
	(0.9315)	(0.9279)	(1.5260)	(1.5214)	(1.2140)	(1.2026)
Industry M&A	-2.0607	-2.0628	-1.4054	-1.3597	-3.2114	-3.2854
	(1.3591)	(1.3550)	(1.6585)	(1.6598)	(2.3333)	(2.3290)
Constant	4.2243***	4.4775***	3.5832***	3.8918***	4.6931***	4.8245***
	(0.8396)	(0.7888)	(1.0827)	(1.0257)	(1.4250)	(1.3258)
F	9.4***	9.4***	7.5***	7.5***	3.4***	3.5***
R^2	3.7	3.6	4.5	4.5	3.3	3.4
Observations	5,477	5,477	3,108	3,108	2,369	2,369

Table 4: Multivariate analysis without and with instrumental variables: likelihood of any investing in mergers and acquisitions

This table presents results of specifications modelling the likelihood of firms making a takeover bid. *Bidding firm* is a dummy variable that equals one when the focus firm is a bidding firm in a given year and zero otherwise. Columns (1) and (2) present results of ordinary probit regressions with *Bidding firm* as the dependent variable and non-instrumented measures of takeover protection *(GIM index & GIM dictatorship)* and firm and industry characteristics as control variables. Columns (3a) and (3b) present the first and second results respectively of an IV regression where the *GIM index* is treated as the suspect endogenous variable. Columns (4a) and (4b) present the first and second results respectively of an IV regression where the binary variable, *GIM dictatorship*, is treated as the suspect endogenous variable. *IPO GIM index* & *HQ GIM index* are used as IVs in both models. Column (5) presents results of a reduced form probit regression. Industry M&A controls for observable and unobservable differences in M&A across industry years. Overall-model statistics (Chi^2 & Pseudo R^2) are at the bottom of the table. Also presented is the Chi^2 statistic for tests of null hypothesis that GIM index & GIM dictatorship can be regarded as exogenous (left non-instrumented). Please refer to Appendix A for a description of all variables. Standard errors are clustered at the firm level. ***, **, & * denote one-, five-, and ten-percent significance respectively.

	(1)	(2)	(3a)	(3b)	(4a)	(4b)	(5)
Variables	**Bidding firm (0/1)**	**Bidding firm (0/1)**	**GIM index**	**Bidding firm (0/1)**	**GIM dictatorship (0/1)**	**Bidding firm (0/1)**	**Bidding firm (0/1)**
GIM index	0.0025*						
	(0.0015)						
Instrumented GIM index				-0.0129**			
				(0.0060)			
GIM dictatorship (0/1)		0.0077					
		(0.0076)					
Instrumented GIM dictatorship						-0.0823**	
						(0.0381)	
IPO GIM index			0.5525***		0.0854***		-0.0044
			(0.0525)		(0.0091)		(0.0038)
HQ GIM index			0.2951***		0.0481***		-0.0099**
			(0.0600)		(0.0107)		(0.0042)
ln(Size)	0.0127***	0.0129***	0.0921*	0.0146***	0.0090	0.0142***	0.0128***
	(0.0028)	(0.0028)	(0.0476)	(0.0031)	(0.0084)	(0.0031)	(0.0029)
Leverage	0.0127	0.0132	0.6248*	0.0222	0.1220**	0.0243	0.0162
	(0.0237)	(0.0237)	(0.3228)	(0.0247)	(0.0572)	(0.0248)	(0.0238)
Market-to-book	-0.0053*	-0.0056*	-0.0777**	-0.0069**	-0.0097	-0.0066**	-0.0061*
	(0.0031)	(0.0031)	(0.0330)	(0.0032)	(0.0075)	(0.0032)	(0.0032)

	(1)	(2)	(3a)	(3b)	(4a)	(4b)	(5)
Variables	**Bidding firm (0/1)**	**Bidding firm (0/1)**	**GIM index**	**Bidding firm (0/1)**	**GIM dictatorship (0/1)**	**Bidding firm (0/1)**	**Bidding firm (0/1)**
Tangibility	-0.0946***	-0.0940***	0.1968	-0.0866***	0.0396	-0.0851***	-0.0890***
	(0.0128)	(0.0128)	(0.1613)	(0.0136)	(0.0292)	(0.0140)	(0.0128)
Liquidity	0.0010	0.0001	-0.8355***	-0.0108	-0.1533***	-0.0128	-0.0019
	(0.0221)	(0.0220)	(0.2939)	(0.0233)	(0.0557)	(0.0238)	(0.0220)
Sales growth	0.0028	0.0027	-0.0309*	0.0023	-0.0184	0.0021	0.0027
	(0.0027)	(0.0027)	(0.0171)	(0.0027)	(0.0159)	(0.0028)	(0.0028)
ROA	0.1126***	0.1125***	-0.2420	0.1091***	-0.0314	0.1088***	0.1190***
	(0.0423)	(0.0423)	(0.3717)	(0.0423)	(0.0817)	(0.0421)	(0.0432)
Stock return	0.0387***	0.0389***	0.0916**	0.0393***	0.0052	0.0383***	0.0384***
	(0.0073)	(0.0073)	(0.0444)	(0.0073)	(0.0087)	(0.0073)	(0.0074)
Stock volatility	-1.1002***	-1.1384***	-13.6979***	-1.5088***	-2.4861***	-1.5451***	-1.3701***
	(0.3026)	(0.3018)	(2.8435)	(0.3328)	(0.5558)	(0.3425)	(0.3084)
Industry concentration	-0.2498***	-0.2506***	-0.7342	-0.2461***	-0.0838	-0.2429***	-0.2381***
	(0.0620)	(0.0622)	(0.5882)	(0.0637)	(0.1042)	(0.0630)	(0.0619)
Industry M&A	0.2437***	0.2450***	1.3652**	0.2767***	0.1953*	0.2750***	0.2598***
	(0.0483)	(0.0484)	(0.5918)	(0.0500)	(0.1057)	(0.0499)	(0.0488)
Rate spread	-2.1983***	-2.2108***	-0.8840	-2.5342***	-1.3877	-2.6676***	-2.5682***
	(0.6368)	(0.6380)	(5.5521)	(0.6547)	(1.0949)	(0.6631)	(0.6506)
Constant	0.2050***	0.2050***	1.2574	0.2089***	0.4219***	0.2102***	0.2051***
	(0.0039)	(0.0039)	(0.7880)	(0.0050)	(0.0109)	(0.0059)	(0.0039)
Chi2	250.7***	246.4***	246.6***		486.7***		255.4***
Pseudo R2	2.1	2.1					2.1
Chi2 [exog. test]			6.9***		5.3**		
Observations	21,163	21,163	20,723		20,723		20,723

Table 5: Multivariate analysis with instrumental variables: wealth effect from investment in mergers and acquisitions

This table presents multivariate analysis for the wealth effect from investment in mergers and acquisitions with instrumented measures of takeover protection for the acquirer. Columns (1a) and (1b) present the first and second results respectively of an IV regression where the *GIM index* is treated as the suspect endogenous variable. Columns (2a) and (2b) present the first and second results respectively of an IV regression where the binary variable, *GIM dictatorship*, is treated as the suspect endogenous variable. *IPO GIM index* & *HQ GIM index* are used as IVs in both models. The dependent variable in the second stage of both models is the announcement period return *(Ann. return [-1 to +1])*. Column (3) presents results of a reduced form regression where *Ann. return [-1 to +1]* is regressed directly on IVs and other control variables. Industry M&A controls for observable and unobservable differences in mergers and acquisitions across industry years. Please refer to Appendix A for a description of all variables. Standard errors are clustered at the firm level. ***, **, & * denote one-, five-, and ten-percent significance respectively.

	All bids				
	(1a)	(1b)	(2a)	(2b)	(3)
Variables	GIM index	Ann. return [-1 to +1]	GIM dictatorship	Ann. return [-1 to +1]	Ann. return [-1 to +1]
Instrumented GIM index		0.5222***			
		(0.1536)			
Instrumented GIM dictatorship				3.1385***	
				(0.9089)	
IPO GIM index	0.5584***		0.0883***		0.2944***
	(0.0675)		(0.0124)		(0.0843)
HQ GIM index	0.2747***		0.0492***		0.1363
	(0.0868)		(0.0167)		(0.1072)
Serial (0/1)	0.0949	-0.4335**	0.0144	-0.4317**	-0.3841*
	(0.1036)	(0.2018)	(0.0174)	(0.2019)	(0.1961)
Diversifying (0/1)	0.3224***	-0.6368***	0.0666***	-0.6802***	-0.4684**
	(0.1120)	(0.2035)	(0.0184)	(0.2092)	(0.1882)
Cross-border (0/1)	0.0729	-0.3136*	0.0323*	-0.3723*	-0.2753
	(0.1003)	(0.1879)	(0.0187)	(0.1935)	(0.1806)
Public (0/1)	0.0879	-2.0552***	0.0124	-2.0456***	-2.0101***
	(0.1064)	(0.2638)	(0.0206)	(0.2666)	(0.2561)
Stock only (0/1)	-0.0989	-0.8820**	-0.0370	-0.8234**	-0.9334**
	(0.1598)	(0.3949)	(0.0289)	(0.3990)	(0.3869)
ln(Value)	0.0251	0.1186	0.0035	0.1234	0.1317
	(0.0369)	(0.1026)	(0.0074)	(0.1030)	(0.1009)
ln(Size)	-0.0141	-0.4614***	-0.0042	-0.4613***	-0.4695***
	(0.0630)	(0.1097)	(0.0113)	(0.1109)	(0.1044)
Leverage	0.0596	0.7684	-0.0234	0.8535	0.8003
	(0.5025)	(0.7433)	(0.0990)	(0.7499)	(0.7020)
Market-to-book	-0.0923**	0.0182	-0.0166	-0.0074	-0.0301
	(0.0396)	(0.1554)	(0.0121)	(0.1425)	(0.1462)
Tangibility	0.6029**	-0.5338	0.1009**	-0.5632	-0.2181
	(0.2616)	(0.3262)	(0.0413)	(0.3437)	(0.2867)
Liquidity	-1.3688***	0.1536	-0.2875***	0.3377	-0.5638
	(0.4143)	(0.7375)	(0.0777)	(0.7541)	(0.6835)
Sales growth	-0.1624	-0.2132	-0.0073	-0.2632	-0.2975
	(0.1446)	(0.3362)	(0.0337)	(0.3466)	(0.3289)
ROA	-0.8683	-0.9406	-0.2070	-0.6837	-1.3876
	(0.6123)	(1.3688)	(0.1315)	(1.4104)	(1.2847)
Stock return	0.0323	-0.0314	0.0180	-0.0563	-0.0147
	(0.1113)	(0.2893)	(0.0228)	(0.2912)	(0.2849)
Stock volatility	-23.7945***	16.9289	-3.5609***	15.4746	4.4651
	(6.2365)	(15.5931)	(1.1433)	(15.5317)	(13.8559)
Industry concentration	-1.3014	1.8940*	-0.2907*	2.1382*	1.2105
	(0.9109)	(1.0845)	(0.1624)	(1.1339)	(0.9377)
Industry M&A	0.7778	-1.8759	-0.0128	-1.4170	-1.4710
	(0.9769)	(1.5187)	(0.1699)	(1.5247)	(1.3640)
Constant	2.4225**	-0.6623	0.4406***	2.7128***	0.6488
	(1.1201)	(1.7751)	(0.0151)	(1.0202)	(1.4975)
Chi^2	158.0***		167.2***	156.5***	

	All bids				
	(1a)	(1b)	(2a)	(2b)	(3)
Variables	**GIM index**	**Ann. return [-1 to +1]**	**GIM dictatorship**	**Ann. return [-1 to +1]**	**Ann. return [-1 to +1]**
F					9.6***
R^2/Pseudo R^2			10.3		4.0
Partial F [IV]		44.0***		69.8***	
Partial R^2 [IV]		6.4		5.2	
Chi^2 [no over-id. test]		0.0			
F [exog. test]		13.8***		15.5***	
Observations		5,362		5,362	5,362

Table 6: Multivariate analysis with instrumental variables: wealth effect from non-diversifying and diversifying investment in mergers and acquisitions

This table presents multivariate analysis for the wealth effect from investment in non-diversifying and diversifying mergers and acquisitions with instrumented measures of takeover protection for the acquirer. Columns 1 – 3 (columns 4 – 6) present results for non-diversifying (diversifying) bids. Bids are classified as non-diversifying if the acquirer and the target share the same two-digit SIC code. Columns (1a) and (1b) present the first and second results respectively of an instrumental variable regression where the *GIM index* is treated as the suspect endogenous variable. Columns (2a) and (2b) present the first and second results respectively of an instrumental variable regression where the binary variable, *GIM dictatorship*, is treated as the suspect endogenous variable. *IPO GIM index* & *HQ GIM index* are used as instrumental variables in both models. The dependent variable in the second stage of both models is the announcement period return *(Ann. return [-1 to +1])*. Column (3) presents results of a reduced form regression where *Ann. return [-1 to +1]* is regressed directly on the instrumental variables. Columns 4(a) – 6 present results of similar specifications using a sample of diversifying bids. Industry M&A controls for observable and unobservable differences in mergers and acquisitions across industry years. Please refer to Appendix A for a description of all variables. Standard errors are clustered at the firm level. ***, **, & * denote one-, five-, and ten-percent significance respectively.

	Non-diversifying bids					**Diversifying bids**				
	(1a)	**(1b)**	**(2a)**	**(2b)**	**(3)**	**(4a)**	**(4b)**	**(5a)**	**(5b)**	**(6)**
Variables	**GIM index**	**Ann. return [-1 to +1]**	**GIM dictatorship (0/1)**	**Ann. return [-1 to +1]**	**Ann. return [-1 to +1]**	**GIM index**	**Ann. return [-1 to +1]**	**GIM dictatorship (0/1)**	**Ann. return [-1 to +1]**	**Ann. return [-1 to +1]**
Instrumented GIM index		0.6825***					0.2553			
		(0.1870)					(0.2383)			
Instrumented GIM dictatorship				4.2820***					1.2878	
				(1.1458)					(1.3565)	
IPO GIM index	0.5737***		0.0888***		0.3907***	0.5405***		0.0878***		0.1422
	(0.0716)		(0.0134)		(0.1070)	(0.0909)		(0.0155)		(0.1365)
HQ GIM index	0.2269**		0.0409**		0.1569	0.3441***		0.0617***		0.0772
	(0.0925)		(0.0180)		(0.1386)	(0.1165)		(0.0208)		(0.1683)
Serial (0/1)	0.1080	-0.3254	0.0091	-0.2958	-0.2516	0.0568	-0.5726*	0.0180	-0.5813*	-0.5583*
	(0.1229)	(0.2524)	(0.0209)	(0.2557)	(0.2426)	(0.1473)	(0.3159)	(0.0243)	(0.3154)	(0.3146)
Cross-border (0/1)	0.1333	-0.4069	0.0675***	-0.6060**	-0.3161	0.0021	-0.2206	-0.0135	-0.1992	-0.2197
	(0.1280)	(0.2629)	(0.0244)	(0.2816)	(0.2442)	(0.1437)	(0.2747)	(0.0272)	(0.2721)	(0.2757)
Public (0/1)	-0.0054	-2.3267***	0.0130	-2.3778***	-2.3301***	0.2183	-1.6217***	0.0106	-1.5788***	-1.5668***
	(0.1381)	(0.3384)	(0.0263)	(0.3490)	(0.3273)	(0.1489)	(0.4065)	(0.0292)	(0.3934)	(0.3887)
Stock only (0/1)	0.0419	-1.2811**	0.0001	-1.2594**	-1.2524**	-0.3068	-0.2712	-0.0884*	-0.2333	-0.3484
	(0.1882)	(0.5057)	(0.0344)	(0.5127)	(0.4955)	(0.2657)	(0.6312)	(0.0458)	(0.6428)	(0.6139)
ln(Value)	0.0078	0.1841	0.0048	0.1729	0.1895	0.0416	0.0765	0.0001	0.0866	0.0873
	(0.0458)	(0.1333)	(0.0089)	(0.1344)	(0.1300)	(0.0537)	(0.1555)	(0.0107)	(0.1569)	(0.1565)
ln(Size)	0.0201	-0.5049***	-0.0045	-0.4832***	-0.4910***	-0.0658	-0.4535***	-0.0038	-0.4654***	-0.4717***
	(0.0770)	(0.1434)	(0.0134)	(0.1443)	(0.1362)	(0.0807)	(0.1700)	(0.0146)	(0.1697)	(0.1680)
Leverage	0.0758	-0.2892	-0.0121	-0.2081	-0.2379	0.0030	2.2330**	-0.0435	2.2715**	2.2323**
	(0.5981)	(0.9000)	(0.1034)	(0.9140)	(0.8384)	(0.6482)	(1.1350)	(0.1336)	(1.1273)	(1.1111)
Market-to-book	-0.1280***	0.0786	-0.0207	0.0364	-0.0088	-0.0159	-0.1800	-0.0151	-0.1736	-0.1845

	Non-diversifying bids					Diversifying bids				
	(1a)	(1b)	(2a)	(2b)	(3)	(4a)	(4b)	(5a)	(5b)	(6)
Variables	**GIM index**	**Ann. return [-1 to +1]**	**GIM dictatorship (0/1)**	**Ann. return [-1 to +1]**	**Ann. return [-1 to +1]**	**GIM index**	**Ann. return [-1 to +1]**	**GIM dictatorship (0/1)**	**Ann. return [-1 to +1]**	**Ann. return [-1 to +1]**
	(0.0345)	(0.1719)	(0.0133)	(0.1561)	(0.1623)	(0.0954)	(0.2048)	(0.0166)	(0.1997)	(0.1961)
Tangibility	0.7557**	-0.6378	0.1184***	-0.6787	-0.1222	0.3445	-0.3996	0.0721	-0.4041	-0.3109
	(0.3249)	(0.4154)	(0.0459)	(0.4465)	(0.3545)	(0.2924)	(0.5009)	(0.0575)	(0.5048)	(0.4751)
Liquidity	-0.6696	0.6301	-0.1659*	0.8806	0.1739	-2.3745***	-0.8892	-0.4629***	-0.9126	-1.4998
	(0.4781)	(0.9297)	(0.0888)	(0.9361)	(0.9051)	(0.5229)	(1.2354)	(0.0972)	(1.2807)	(1.0476)
Sales growth	-0.2070	-0.1225	-0.0314	-0.1134	-0.2639	-0.0958	-0.2260	0.0394	-0.3113	-0.2489
	(0.1528)	(0.4016)	(0.0329)	(0.4196)	(0.3941)	(0.2755)	(0.6349)	(0.0702)	(0.6296)	(0.6383)
ROA	-0.5720	-0.4799	-0.2164	0.0656	-0.8715	-1.2495	-0.8712	-0.1090	-0.9680	-1.1743
	(0.6485)	(1.5374)	(0.1425)	(1.6715)	(1.4289)	(1.0825)	(2.6334)	(0.2054)	(2.6210)	(2.6134)
Stock return	0.2441*	-0.1174	0.0721***	-0.2118	0.0492	-0.2965	-0.0580	-0.0607*	-0.0636	-0.1342
	(0.1300)	(0.3842)	(0.0267)	(0.3965)	(0.3780)	(0.1837)	(0.4435)	(0.0363)	(0.4445)	(0.4291)
Stock volatility	-22.4530***	22.0585	-3.4093***	20.9055	6.7452	-23.7687***	7.8097	-3.2837**	5.4893	1.6911
	(6.2701)	(17.4888)	(1.2284)	(18.1603)	(16.2881)	(9.0309)	(28.4678)	(1.6156)	(27.6589)	(26.0042)
Industry concentration	-0.5791	3.3516**	-0.2124	3.8235**	2.9577*	-1.6248	0.7342	-0.3349*	0.7747	0.3142
	(1.2756)	(1.6570)	(0.2517)	(1.7320)	(1.5190)	(1.1904)	(1.2777)	(0.1943)	(1.3069)	(1.2370)
Industry M&A	1.5249	-1.6561	0.0833	-0.9283	-0.6146	-0.6136	-2.7122	-0.1888	-2.6387	-2.8672
	(1.1303)	(1.8868)	(0.1889)	(1.9043)	(1.6671)	(1.1929)	(2.4143)	(0.2225)	(2.4416)	(2.3722)
Constant	2.2202*	-2.4122	0.4015***	1.8267	-0.9102	2.9375**	1.9447	0.4924***	3.8066**	2.7640
	(1.2451)	(2.0188)	(0.0166)	(1.2274)	(1.8032)	(1.4768)	(3.1002)	(0.0188)	(1.7601)	(2.6204)
Chi^2	114.8***		123.7***	111.9***		54.8***		113.4***	55.7***	
F					7.5***					3.3***
Pseudo R^2			9.8					10.9		
R^2					4.9					3.4
Partial F [IV]	37.9***			54.9***		24.5***			44.5***	
Partial R^2 [IV]	6.6			5.3		6.1			5.3	
Chi^2 [no over-id. test]	0.0					0.0				
F [exog. test]	15.1***			17.2***		1.4			1.6	
Observations	3,055		3,055		3,055	2,307		2,307		2,307

Table 7: Multivariate analysis with instrumental variables and with endogenous sample selection: wealth effect from investment in mergers and acquisitions

This table presents multivariate analysis for the wealth effect from investment in mergers and acquisitions after accounting for the likelihood of firms being bidding firms in the first place. We add the inverse-Mills ratio *(Bidding-firm lambda)* generated from Column (5) of Table 4 as an additional control variable to account for unobservable factors that affect the likelihood of investment in mergers and acquisitions. Columns (1a) and (1b) present the first and second results respectively of an instrumental variable regression where the *GIM index* is treated as the suspect endogenous variable. Columns (2a) and (2b) present the first and second results respectively of an instrumental variable regression where the binary variable, *GIM dictatorship*, is treated as the suspect endogenous variable. *IPO GIM index* & *HQ GIM index* are used as instrumental variables in both models. The dependent variable in the second stage of both models is the announcement period return *(Ann. return [-1 to +1])*. Column (3) presents results of a reduced form regression where *Ann. return [-1 to +1]* is regressed directly on the instrumental variables. Industry M&A controls for observable and unobservable differences in mergers and acquisitions across industry years. Please refer to Appendix A for a description of all variables. Standard errors are clustered at the firm level. ***, **, & * denote one-, five-, and ten-percent significance respectively.

	All bids				
	(1a)	(1b)	(2a)	(2b)	(3)
Variables	**GIM index**	**Ann. return [-1 to +1]**	**GIM dictatorship**	**Ann. return [-1 to +1]**	**Ann. return [-1 to +1]**
Instrumented GIM index		0.4735***			
		(0.1567)			
Instrumented GIM dictatorship				2.8424***	
				(0.9268)	
IPO GIM index	0.5725***		0.0905***		0.2815***
	(0.0703)		(0.0130)		(0.0859)
HQ GIM index	0.3132***		0.0557***		0.1012
	(0.0955)		(0.0174)		(0.1242)
Serial	0.0888	-0.4220**	0.0134	-0.4203**	-0.3786*
	(0.1041)	(0.2030)	(0.0174)	(0.2030)	(0.1975)
Diversifying	0.3211***	-0.6193***	0.0664***	-0.6584***	-0.4672**
	(0.1118)	(0.2023)	(0.0183)	(0.2085)	(0.1883)
Cross-border	0.0770	-0.3155*	0.0329*	-0.3686*	-0.2790
	(0.1003)	(0.1864)	(0.0187)	(0.1916)	(0.1804)
Public	0.0804	-2.0398***	0.0112	-2.0311***	-2.0033***
	(0.1063)	(0.2628)	(0.0207)	(0.2649)	(0.2567)
Stock only	-0.1264	-0.8581**	-0.0415	-0.8051**	-0.9083**
	(0.1578)	(0.3983)	(0.0285)	(0.4010)	(0.3940)
ln(Value)	0.0221	0.1232	0.0030	0.1275	0.1344
	(0.0367)	(0.1029)	(0.0075)	(0.1032)	(0.1013)
ln(Size)	-0.0584	-0.4117***	-0.0115	-0.4115***	-0.4291***
	(0.0737)	(0.1252)	(0.0135)	(0.1270)	(0.1256)
Leverage	-0.0370	0.8714	-0.0398	0.9485	0.8885
	(0.5133)	(0.7588)	(0.0982)	(0.7623)	(0.7290)
Market-to-book	-0.0682	-0.0118	-0.0127	-0.0350	-0.0521
	(0.0455)	(0.1556)	(0.0131)	(0.1466)	(0.1468)
Tangibility	0.9746**	-0.9045	0.1632**	-0.9313	-0.5571
	(0.4310)	(0.6384)	(0.0833)	(0.6503)	(0.6673)
Liquidity	-1.3359***	0.0621	-0.2817***	0.2280	-0.5938
	(0.4154)	(0.7411)	(0.0781)	(0.7576)	(0.6872)
Sales growth	-0.1822	-0.2023	-0.0106	-0.2477	-0.2794
	(0.1462)	(0.3336)	(0.0345)	(0.3429)	(0.3285)
ROA	-1.4353*	-0.4025	-0.3013*	-0.1694	-0.8706
	(0.8570)	(1.5745)	(0.1756)	(1.6140)	(1.5874)
Stock return	-0.1270	0.1409	-0.0087	0.1186	0.1305
	(0.2036)	(0.3889)	(0.0374)	(0.3950)	(0.3930)
Stock volatility	-17.9769**	9.6791	-2.5715	8.3301	-0.8398
	(8.7362)	(18.7454)	(1.6504)	(18.6758)	(17.4552)
Industry concentration	-0.2419	0.7145	-0.1132	0.9331	0.2444
	(1.4476)	(2.0667)	(0.2721)	(2.1415)	(2.0694)
Industry M&A	-0.2883	-0.6959	-0.1906	-0.2783	-0.4988

	All bids				
	(1a)	(1b)	(2a)	(2b)	(3)
Variables	**GIM index**	**Ann. return [-1 to +1]**	**GIM dictatorship**	**Ann. return [-1 to +1]**	**Ann. return [-1 to +1]**
	(1.5240)	(2.2767)	(0.2714)	(2.2645)	(2.2805)
Bidding-firm lambda	-1.5373	1.6428	-0.2577	1.6456	1.4019
	(1.5769)	(2.4860)	(0.2938)	(2.4957)	(2.6545)
Constant	4.0496**	-2.4502	0.4405***	0.6086	-0.8349
	(1.9209)	(3.4293)	(0.0151)	(3.4197)	(3.2867)
Chi^2	160.6***		167.2***	159.7***	
F					9.2***
Pseudo R^2			10.3		
R^2					4.0
Partial F [IV]	38.7***			59.0***	
Partial R^2 [IV]	5.5			4.5	
Chi^2 [no over-id. test]	0.2				
F [exog. test]	11.0***			12.2***	
Observations	5,362		5,362		5,362

Table 8: Multivariate analysis with instrumental variables and with endogenous sample selection: wealth effect from non-diversifying and diversifying investment in mergers and acquisitions

This table presents multivariate analysis for the wealth effect from investment in non-diversifying and diversifying mergers and acquisitions after accounting for the likelihood of firms being bidding firms in the first place. We add the inverse-Mills ratio *(Bidding-firm lambda)* generated from Column (5) of Table 4 as an additional control variable to account for unobservable factors that affect the likelihood of investment in mergers and acquisitions. Bids are classified as non-diversifying if the acquirer and the target share the same two-digit SIC code. Columns 1(a) – 3 (columns 4(a) – 6) present results for non-diversifying (diversifying) bids. Bids are classified as non-diversifying if the acquirer and the target share the same two-digit SIC code. Columns (1a) and (1b) present the first and second results respectively of an instrumental variable regression where the *GIM index* is treated as the suspect endogenous variable. Columns (2a) and (2b) present the first and second results respectively of an instrumental variable regression where the binary variable, *GIM dictatorship*, is treated as the suspect endogenous variable. *IPO GIM index* & *HQ GIM index* are used as instrumental variables in both models. The dependent variable in the second stage of both models is the announcement period return *(Ann. return [-1 to +1])*. Column (3) presents results of a reduced form regression where *Ann. return [-1 to +1]* is regressed directly on the instrumental variables. Columns 4(a) – 6 present results of similar specifications using a sample of diversifying bids. Industry M&A controls for observable and unobservable differences in mergers and acquisitions across industry years. Please refer to Appendix A for a description of all variables. Standard errors are clustered at the firm level. ***, **, & * denote one-, five-, and ten-percent significance respectively.

	Non-diversifying bids					**Diversifying bids**				
	(1a)	**(1b)**	**(2a)**	**(2b)**	**(3)**	**(4a)**	**(4b)**	**(5a)**	**(5b)**	**(6)**
Variables	**GIM index**	**Ann. return [-1 to +1]**	**GIM dictatorship**	**Ann. return [-1 to +1]**	**Ann. return [-1 to +1]**	**GIM index**	**Ann. return [-1 to +1]**	**GIM dictatorship**	**Ann. return [-1 to +1]**	**Ann. return [-1 to +1]**
Instrumented GIM index		0.5188***					0.3404			
		(0.1855)					(0.2528)			
Instrumented GIM dictatorship				3.1689***					1.7930	
				(1.0881)					(1.4854)	
IPO GIM index	0.5918***		0.0938***		0.3335***	0.5459***		0.0866***		0.1744
	(0.0753)		(0.0139)		(0.1085)	(0.0940)		(0.0162)		(0.1391)
HQ GIM index	0.2746**		0.0547***		0.0067	0.3598***		0.0579***		0.1694
	(0.1083)		(0.0194)		(0.1635)	(0.1244)		(0.0221)		(0.1924)
Serial (0/1)	0.0975	-0.2759	0.0061	-0.2497	-0.2186	0.0557	-0.5835*	0.0184	-0.5969*	-0.5647*
	(0.1246)	(0.2509)	(0.0210)	(0.2514)	(0.2445)	(0.1474)	(0.3190)	(0.0242)	(0.3188)	(0.3156)
Cross-border (0/1)	0.1374	-0.4006	0.0686***	-0.5474**	-0.3289	0.0041	-0.2092	-0.0139	-0.1796	-0.2080
	(0.1280)	(0.2556)	(0.0244)	(0.2700)	(0.2439)	(0.1437)	(0.2766)	(0.0272)	(0.2746)	(0.2764)
Public (0/1)	-0.0121	-2.2964***	0.0110	-2.3315***	-2.3091***	0.2143	-1.6634***	0.0116	-1.6080***	-1.5903***
	(0.1376)	(0.3321)	(0.0263)	(0.3384)	(0.3272)	(0.1492)	(0.4085)	(0.0295)	(0.3955)	(0.3889)
Stock only (0/1)	0.0075	-1.1742**	-0.0097	-1.1488**	-1.1439**	-0.3181	-0.2955	-0.0857*	-0.2415	-0.4149
	(0.1884)	(0.5120)	(0.0342)	(0.5156)	(0.5092)	(0.2623)	(0.6367)	(0.0454)	(0.6468)	(0.6221)
ln(Value)	0.0047	0.1959	0.0039	0.1886	0.1991	0.0399	0.0655	0.0006	0.0787	0.0776
	(0.0456)	(0.1326)	(0.0089)	(0.1331)	(0.1307)	(0.0533)	(0.1571)	(0.0106)	(0.1581)	(0.1569)
ln(Size)	-0.0346	-0.3376**	-0.0203	-0.3070*	-0.3188*	-0.0841	-0.5439***	0.0006	-0.5637***	-0.5795***
	(0.0905)	(0.1634)	(0.0159)	(0.1629)	(0.1630)	(0.0983)	(0.1972)	(0.0179)	(0.2023)	(0.2015)
Leverage	-0.0470	0.0467	-0.0482	0.1361	0.1489	-0.0348	2.0415*	-0.0344	2.0902*	2.0096*

	Non-diversifying bids					Diversifying bids				
	(1a)	(1b)	(2a)	(2b)	(3)	(4a)	(4b)	(5a)	(5b)	(6)
Variables	**GIM index**	**Ann. return [-1 to +1]**	**GIM dictatorship**	**Ann. return [-1 to +1]**	**Ann. return [-1 to +1]**	**GIM index**	**Ann. return [-1 to +1]**	**GIM dictatorship**	**Ann. return [-1 to +1]**	**Ann. return [-1 to +1]**
	(0.6096)	(0.9053)	(0.1049)	(0.9125)	(0.8799)	(0.6679)	(1.1850)	(0.1327)	(1.1759)	(1.1502)
Market-to-book	-0.0979**	-0.0277	-0.0125	-0.0682	-0.1035	-0.0064	-0.1341	-0.0173	-0.1226	-0.1285
	(0.0474)	(0.1730)	(0.0144)	(0.1625)	(0.1641)	(0.0958)	(0.2132)	(0.0177)	(0.2081)	(0.2017)
Tangibility	1.2104**	-1.8170**	0.2507***	-1.9509**	-1.5542*	0.4993	0.3317	0.0347	0.3473	0.6001
	(0.5390)	(0.8563)	(0.0931)	(0.8731)	(0.9287)	(0.5589)	(0.9093)	(0.1141)	(0.9160)	(0.9595)
Liquidity	-0.6397	0.4732	-0.1567*	0.6452	0.0796	-2.3565***	-0.6186	-0.4675***	-0.6094	-1.3944
	(0.4793)	(0.9088)	(0.0889)	(0.9081)	(0.9062)	(0.5227)	(1.2678)	(0.0980)	(1.3405)	(1.0501)
Sales growth	-0.2301	-0.0945	-0.0379	-0.0851	-0.1910	-0.1058	-0.2599	0.0419	-0.3756	-0.3080
	(0.1540)	(0.3929)	(0.0331)	(0.4029)	(0.3912)	(0.2757)	(0.6355)	(0.0709)	(0.6321)	(0.6385)
ROA	-1.2733	1.3568	-0.4194**	1.9216	1.3373	-1.4775	-1.8103	-0.0543	-1.9730	-2.5164
	(0.9985)	(1.8586)	(0.1906)	(1.9071)	(1.8813)	(1.2975)	(2.9150)	(0.2547)	(2.9548)	(3.0018)
Stock return	0.0487	0.4772	0.0152	0.4593	0.6647	-0.3630	-0.3605	-0.0448	-0.3766	-0.5257
	(0.2478)	(0.5236)	(0.0452)	(0.5392)	(0.5344)	(0.2933)	(0.5402)	(0.0545)	(0.5347)	(0.5623)
Stock volatility	-15.4946	-0.9369	-1.3419	-3.7767	-15.1694	-21.2448*	21.9756	-3.8956*	19.7461	16.5479
	(9.9093)	(22.9375)	(1.8103)	(23.1671)	(22.2927)	(11.9540)	(32.0560)	(2.2872)	(31.7300)	(30.0420)
Industry concentration	0.6738	-0.2360	0.1518	-0.2001	-0.9882	-1.1698	3.0765	-0.4444	3.2427	2.9925
	(1.8683)	(2.8595)	(0.3677)	(2.9254)	(2.9801)	(1.8592)	(2.7437)	(0.3297)	(2.9028)	(2.8287)
Industry M&A	0.2251	2.3153	-0.2937	3.2006	3.4788	-1.0627	-4.8506	-0.0812	-4.8194	-5.5106
	(1.8499)	(2.9600)	(0.3056)	(2.9058)	(3.0606)	(1.9688)	(3.4068)	(0.3707)	(3.3887)	(3.5492)
Bidding-firm lambda	-1.8678	5.3057	-0.5445	5.7694*	5.8825	-0.6500	-3.1818	0.1564	-3.3090	-3.8260
	(1.9554)	(3.3962)	(0.3426)	(3.3713)	(3.7378)	(2.0968)	(3.3499)	(0.3961)	(3.4543)	(3.6225)
Constant	4.1919*	-8.2403*	0.4013***	-5.6181	-7.1196	3.6299	5.3872	0.4925***	7.9888*	6.8400
	(2.2608)	(4.5133)	(0.0166)	(4.5958)	(4.4728)	(2.6777)	(5.0209)	(0.0188)	(4.8309)	(4.7906)
Chi^2	121.2***		125.2***	121.0***		54.1***		115.2***	55.1***	
F					7.3***					3.1***
Pseudo R^2			9.9					10.9		
R^2					5.0					3.5
Partial F [IV]	32.9***			52.7***		21.2***			33.8***	
Partial R^2 [IV]	5.7			4.8		5.2			4.2	
Chi^2 [no over-id. test]	0.9					0.1				
F [exog. test]	8.4***			9.2***		2.3			2.4	
Observations	3,055		3,055		3,055	2,307		2,307		2,307

Online Appendix

Table B1: Multivariate analysis with instrumental variables and with endogenous sample selection: likelihood of a positive wealth effect from non-diversifying and diversifying investment in mergers and acquisitions

This table presents multivariate analysis for the wealth effect from investment in non-diversifying and diversifying mergers and acquisitions after accounting for the likelihood of firms being bidding firms in the first place. We add the inverse-Mills ratio *(Bidding-firm lambda)* generated from Column (5) of Table 4 as an additional control variable to account for unobservable factors that affect the likelihood of investment in mergers and acquisitions. Bids are classified as non-diversifying if the acquirer and the target share the same two-digit SIC code. Columns 1(a) – 3 present results of several specifications using a sample of non-diversifying bids. Columns (1a) and (1b) present the first and second results respectively of an instrumental variable regression where the *GIM index* is treated as the suspect endogenous variable. Columns (2a) and (2b) present the first and second results respectively of an instrumental variable regression where the binary variable, *GIM dictatorship*, is treated as the suspect endogenous variable. *IPO GIM index* & *HQ GIM index* are used as instrumental variables in both models. The dependent variable in the second stage of both models, *Ann. return [-1 to +1] positive,* is a dummy variable that equals one when *Ann. return [-1 to +1]* is greater than zero and zero otherwise. Column (3) presents results of a reduced form regression where *Ann. return [-1 to +1] positive* is regressed directly on the instrumental variables. Columns 4(a) – 6 present results of similar specifications using a sample of diversifying bids. Industry M&A controls for observable and unobservable differences in mergers and acquisitions across industry years. Please refer to Appendix A for a description of all variables. Standard errors are clustered at the firm level. ***, **, & * denote one-, five-, and ten-percent significance respectively.

	Non-diversifying bids					**Diversifying bids**				
	(1a)	**(1b)**	**(2a)**	**(2b)**	**(3)**	**(4a)**	**(4b)**	**(5a)**	**(5b)**	**(6)**
Variables	**GIM index**	**Ann. return [-1 to +1] positive**	**GIM dictatorship**	**Ann. return [-1 to +1] positive**	**Ann. return [-1 to +1] positive**	**GIM index**	**Ann. return [-1 to +1] positive**	**GIM dictatorship**	**Ann. return [-1 to +1] positive**	**Ann. return [-1 to +1] positive**
Instrumented GIM index		0.0350**					0.0240			
		(0.0138)					(0.0183)			
Instrumented GIM dictatorship				0.2181***					0.1313	
				(0.0772)					(0.1036)	
IPO GIM index	0.5918***		0.0933***		0.0227**	0.5459***		0.0873***		0.0153
	(0.0753)		(0.0140)		(0.0095)	(0.0940)		(0.0159)		(0.0111)
HQ GIM index	0.2746**		0.0536***		0.0054	0.3598***		0.0561**		0.0012
	(0.1083)		(0.0192)		(0.0133)	(0.1244)		(0.0219)		(0.0160)
Serial (0/1)	0.0975	-0.0200	0.0050	-0.0179	-0.0172	0.0557	-0.0028	0.0176	-0.0039	-0.0015
	(0.1246)	(0.0194)	(0.0209)	(0.0192)	(0.0198)	(0.1474)	(0.0237)	(0.0242)	(0.0237)	(0.0241)
Cross-border (0/1)	0.1374	-0.0190	0.0697***	-0.0290	-0.0149	0.0041	-0.0003	-0.0145	0.0019	-0.0002
	(0.1280)	(0.0222)	(0.0244)	(0.0223)	(0.0227)	(0.1437)	(0.0255)	(0.0271)	(0.0255)	(0.0260)
Public (0/1)	-0.0121	-0.1029***	0.0115	-0.1036***	-0.1092***	0.2143	-0.0606**	0.0124	-0.0566**	-0.0571**
	(0.1376)	(0.0247)	(0.0262)	(0.0248)	(0.0248)	(0.1492)	(0.0286)	(0.0295)	(0.0285)	(0.0290)
Stock only (0/1)	0.0075	-0.0650**	-0.0046	-0.0627**	-0.0673**	-0.3181	-0.0538	-0.0857*	-0.0495	-0.0614
	(0.1884)	(0.0302)	(0.0342)	(0.0303)	(0.0321)	(0.2623)	(0.0398)	(0.0453)	(0.0400)	(0.0390)
ln(Value)	0.0047	0.0040	0.0039	0.0034	0.0044	0.0399	-0.0058	0.0005	-0.0048	-0.0047

	Non-diversifying bids					Diversifying bids				
	(1a)	(1b)	(2a)	(2b)	(3)	(4a)	(4b)	(5a)	(5b)	(6)
Variables	**GIM index**	**Ann. return [-1 to +1] positive**	**GIM dictatorship**	**Ann. return [-1 to +1] positive**	**Ann. return [-1 to +1] positive**	**GIM index**	**Ann. return [-1 to +1] positive**	**GIM dictatorship**	**Ann. return [-1 to +1] positive**	**Ann. return [-1 to +1] positive**
	(0.0456)	(0.0080)	(0.0089)	(0.0079)	(0.0083)	(0.0533)	(0.0095)	(0.0106)	(0.0094)	(0.0096)
ln(Size)	-0.0346	-0.0106	-0.0198	-0.0087	-0.0112	-0.0841	-0.0075	0.0010	-0.0091	-0.0086
	(0.0905)	(0.0118)	(0.0159)	(0.0113)	(0.0128)	(0.0983)	(0.0140)	(0.0180)	(0.0143)	(0.0147)
Leverage	-0.0470	-0.0249	-0.0537	-0.0187	-0.0235	-0.0348	0.0696	-0.0340	0.0726	0.0738
	(0.6096)	(0.0664)	(0.1045)	(0.0654)	(0.0677)	(0.6679)	(0.0881)	(0.1333)	(0.0884)	(0.0866)
Market-to-book	-0.0979**	0.0005	-0.0162	-0.0020	-0.0040	-0.0064	-0.0033	-0.0165	-0.0023	-0.0048
	(0.0474)	(0.0108)	(0.0152)	(0.0101)	(0.0106)	(0.0958)	(0.0159)	(0.0176)	(0.0152)	(0.0152)
Tangibility	1.2104**	-0.1216*	0.2458***	-0.1278**	-0.0962	0.4993	-0.0529	0.0303	-0.0505	-0.0581
	(0.5390)	(0.0660)	(0.0932)	(0.0651)	(0.0778)	(0.5589)	(0.0806)	(0.1139)	(0.0813)	(0.0921)
Liquidity	-0.6397	0.0358	-0.1583*	0.0481	0.0120	-2.3565***	0.1111	-0.4695***	0.1145	0.0518
	(0.4793)	(0.0591)	(0.0887)	(0.0582)	(0.0621)	(0.5227)	(0.0881)	(0.0977)	(0.0903)	(0.0751)
Sales growth	-0.2301	0.0048	-0.0364	0.0057	-0.0026	-0.1058	-0.0135	0.0426	-0.0217	-0.0145
	(0.1540)	(0.0300)	(0.0333)	(0.0300)	(0.0315)	(0.2757)	(0.0493)	(0.0701)	(0.0493)	(0.0495)
ROA	-1.2733	0.0476	-0.4052**	0.0839	0.0256	-1.4775	0.0687	-0.0574	0.0554	0.0669
	(0.9985)	(0.1452)	(0.1921)	(0.1458)	(0.1606)	(1.2975)	(0.1898)	(0.2520)	(0.1918)	(0.2094)
Stock return	0.0487	0.0148	0.0173	0.0121	0.0230	-0.3630	0.0096	-0.0449	0.0081	0.0077
	(0.2478)	(0.0357)	(0.0449)	(0.0354)	(0.0392)	(0.2933)	(0.0405)	(0.0543)	(0.0405)	(0.0440)
Stock volatility	-15.4946	-0.7192	-1.3609	-0.8254	-1.5444	-21.2448*	-0.5441	-3.9542*	-0.6402	-1.3806
	(9.9093)	(1.5044)	(1.8159)	(1.4268)	(1.5097)	(11.9540)	(1.9280)	(2.2767)	(1.8998)	(1.8015)
Industry concentration	0.6738	-0.0284	0.1495	-0.0201	-0.0434	-1.1698	-0.0477	-0.4527	-0.0293	-0.1294
	(1.8683)	(0.2225)	(0.3660)	(0.2200)	(0.2502)	(1.8592)	(0.2396)	(0.3294)	(0.2507)	(0.2552)
Industry M&A	0.2251	0.0676	-0.2780	0.1205	0.1162	-1.0627	-0.0217	-0.0700	-0.0228	-0.0003
	(1.8499)	(0.2282)	(0.3071)	(0.2163)	(0.2485)	(1.9688)	(0.2986)	(0.3712)	(0.2981)	(0.3248)
Bidding-firm lambda	-1.8678	0.2929	-0.5334	0.3110	0.2935	-0.6500	0.0030	0.1690	-0.0129	0.0561
	(1.9554)	(0.2575)	(0.3424)	(0.2455)	(0.3059)	(2.0968)	(0.2988)	(0.3946)	(0.3060)	(0.3402)
Constant	4.1919*	0.5431***	0.4012***	0.5422***	0.5457***	3.6299	0.5377***	0.4926***	0.5376***	0.5387***
	(2.2608)	(0.0096)	(0.0166)	(0.0098)	(0.0092)	(2.6777)	(0.0114)	(0.0188)	(0.0114)	(0.0111)
Chi^2	71.9***		224.1***		70.8***	23.9		156.5***		23.9
Pseudo R^2					1.8					0.8
Chi^2 [exog. test]	6.0**		5.9**			2.3		2.4		
Observations	3,055		3,055		3,055	2,307		2,307		2,307

Table B2: Multivariate analysis with instrumental variables and with Fama-French industries: wealth effect from non-diversifying and diversifying investment in mergers and acquisitions

This table presents multivariate analysis for the wealth effect from investment in non-diversifying and diversifying mergers and acquisitions with instrumented measures of takeover protection for the acquirer. Columns 1 – 3 (columns 4 – 6) present results for non-diversifying (diversifying) bids. Bids are classified as non-diversifying if the acquirer and the target share the same Fama-French forty-nine industry classification. We also replace *Industry concentration* and *Industry M&A* using this classification. Columns (1a) and (1b) present the first and second results respectively of an instrumental variable regression where the *GIM index* is treated as the suspect endogenous variable. Columns (2a) and (2b) present the first and second results respectively of an instrumental variable regression where the binary variable, *GIM dictatorship*, is treated as the suspect endogenous variable. *IPO GIM index* & *HQ GIM index* are used as instrumental variables in both models. The dependent variable in the second stage of both models is the announcement period return *(Ann. return [-1 to +1])*. Column (3) presents results of a reduced form regression where *Ann. return [-1 to +1]* is regressed directly on the instrumental variables. Columns 4(a) – 6 present results of similar specifications using a sample of diversifying bids. Industry M&A controls for observable and unobservable differences in mergers and acquisitions across industry years. Please refer to Appendix A for a description of all variables. Standard errors are clustered at the firm level. ***, **, & * denote one-, five-, and ten-percent significance respectively.

	Non-diversifying bids					**Diversifying bids**				
	(1a)	**(1b)**	**(2a)**	**(2b)**	**(3)**	**(4a)**	**(4b)**	**(5a)**	**(5b)**	**(6)**
Variables	**GIM index**	**Ann. return [-1 to +1]**	**GIM dictatorship (0/1)**	**Ann. return [-1 to +1]**	**Ann. return [-1 to +1]**	**GIM index**	**Ann. return [-1 to +1]**	**GIM dictatorship (0/1)**	**Ann. return [-1 to +1]**	**Ann. return [-1 to +1]**
Instrumented GIM index		0.6783**					-0.0390			
		(0.2711)					(0.2764)			
Instrumented GIM dictatorship				4.0345**					0.3236	
				(1.6904)					(2.0187)	
IPO GIM index	0.5626***		0.0875***		0.3552**	0.5641***		0.0814***		0.3338*
	(0.0917)		(0.0169)		(0.1601)	(0.1284)		(0.0205)		(0.1990)
HQ GIM index	0.2520**		0.0353*		0.2181	0.4549***		0.0522**		-0.4515**
	(0.1150)		(0.0194)		(0.1497)	(0.1276)		(0.0222)		(0.2025)
Serial (0/1)	0.1004	-0.3582	-0.0033	-0.2899	-0.2887	0.2678	-0.7708*	0.0538*	-0.7989*	-0.7329*
	(0.1456)	(0.3136)	(0.0256)	(0.3156)	(0.3025)	(0.1873)	(0.4377)	(0.0299)	(0.4564)	(0.4159)
Cross-border (0/1)	0.1752	-0.4028	0.0751**	-0.5815	-0.2841	0.0090	-0.4179	-0.0142	-0.4172	-0.4286
	(0.1557)	(0.3399)	(0.0299)	(0.3780)	(0.3168)	(0.1753)	(0.3552)	(0.0331)	(0.3505)	(0.3567)
Public (0/1)	-0.0772	-2.5101***	0.0057	-2.5762***	-2.5586***	0.2203	-1.6030***	-0.0141	-1.6032***	-1.6407***
	(0.1826)	(0.4033)	(0.0340)	(0.4133)	(0.3868)	(0.1991)	(0.5018)	(0.0368)	(0.4899)	(0.4927)
Stock only (0/1)	0.0562	-1.4665**	-0.0016	-1.4095**	-1.4237**	-0.0364	-1.0595	-0.0711	-1.0462	-1.0335
	(0.2434)	(0.5970)	(0.0449)	(0.5980)	(0.5778)	(0.3478)	(0.8637)	(0.0579)	(0.8672)	(0.8624)
ln(Value)	0.0312	0.0905	0.0076	0.0836	0.1126	0.0181	-0.1254	0.0009	-0.1259	-0.1271
	(0.0574)	(0.1653)	(0.0108)	(0.1651)	(0.1612)	(0.0701)	(0.1923)	(0.0124)	(0.1932)	(0.1937)
ln(Size)	-0.0091	-0.3351*	-0.0045	-0.3327*	-0.3360*	-0.0895	-0.3501	-0.0092	-0.3485	-0.4127*
	(0.0923)	(0.1945)	(0.0163)	(0.1969)	(0.1889)	(0.1044)	(0.2187)	(0.0180)	(0.2207)	(0.2282)
Leverage	0.7730	0.4154	0.1432	0.3436	0.9030	0.9427	2.7915*	0.0760	2.7509*	2.8768*
	(0.6854)	(1.1845)	(0.1136)	(1.2224)	(1.0963)	(0.8841)	(1.5026)	(0.1444)	(1.4979)	(1.4854)

	Non-diversifying bids					Diversifying bids				
	(1a)	(1b)	(2a)	(2b)	(3)	(4a)	(4b)	(5a)	(5b)	(6)
Variables	**GIM index**	**Ann. return [-1 to +1]**	**GIM dictatorship (0/1)**	**Ann. return [-1 to +1]**	**Ann. return [-1 to +1]**	**GIM index**	**Ann. return [-1 to +1]**	**GIM dictatorship (0/1)**	**Ann. return [-1 to +1]**	**Ann. return [-1 to +1]**
Market-to-book	-0.1410***	0.1682	-0.0177	0.1122	0.0732	0.0056	0.0702	-0.0160	0.0793	0.0434
	(0.0358)	(0.1535)	(0.0127)	(0.1358)	(0.1382)	(0.0880)	(0.2299)	(0.0181)	(0.2331)	(0.2315)
Tangibility	0.1835	-0.2399	0.0715	-0.4172	-0.1309	0.6731	0.4111	0.1558**	0.2956	0.4812
	(0.3245)	(0.4736)	(0.0512)	(0.5454)	(0.4298)	(0.4227)	(0.7162)	(0.0698)	(0.7902)	(0.6398)
Liquidity	-0.5680	1.3149	-0.1127	1.3785	0.9353	-1.6815***	-0.4520	-0.3520***	-0.2369	-0.5341
	(0.5773)	(1.1864)	(0.1058)	(1.1859)	(1.1487)	(0.6509)	(1.2744)	(0.1187)	(1.3740)	(1.2341)
Sales growth	-0.0769	0.1028	-0.0274	0.1830	0.0370	-0.3440	-0.4003	-0.0006	-0.3665	-0.3274
	(0.1687)	(0.4676)	(0.0388)	(0.4996)	(0.4743)	(0.3515)	(0.8529)	(0.0624)	(0.8443)	(0.8530)
ROA	-0.5792	-0.4998	-0.3121*	0.4131	-0.9300	-0.9948	-1.6332	0.0936	-1.6521	-0.9384
	(0.6502)	(1.7255)	(0.1609)	(2.0192)	(1.6473)	(1.4281)	(3.3499)	(0.2480)	(3.3621)	(3.3277)
Stock return	0.2152	0.3223	0.0898***	0.1487	0.4715	-0.2810	-0.5336	-0.0289	-0.5206	-0.4350
	(0.1660)	(0.4715)	(0.0339)	(0.5117)	(0.4611)	(0.1974)	(0.5223)	(0.0393)	(0.5243)	(0.5253)
Stock volatility	-42.2729***	16.1759	-6.4581***	12.5641	-12.3229	-39.5191***	-21.2531	-4.2645**	-18.2674	-16.0398
	(7.9230)	(23.4677)	(1.4686)	(25.4905)	(21.6561)	(11.9562)	(31.8708)	(1.8374)	(30.2506)	(26.1167)
Industry concentration	-0.5376	-0.6632	-0.2169	-0.1570	-1.0407	-2.7548**	-0.8056	-0.4500**	-0.5851	-0.7055
	(0.9432)	(1.6820)	(0.1883)	(1.7560)	(1.5232)	(1.1596)	(1.3399)	(0.1830)	(1.5068)	(1.3052)
Industry M&A	0.1919	-4.1488*	-0.1768	-3.2827	-3.9966*	-1.2052	-0.9973	-0.2252	-0.8142	-0.6602
	(1.2634)	(2.4876)	(0.2440)	(2.6131)	(2.1546)	(2.1358)	(3.4054)	(0.3379)	(3.5053)	(3.3816)
Constant	3.0565**	-3.2670	0.4066***	1.3009	-1.4169	1.9773	4.9668	0.5028***	4.3320**	5.9204**
	(1.4869)	(2.8094)	(0.0188)	(1.5270)	(2.1308)	(1.8761)	(3.3743)	(0.0210)	(2.0663)	(2.9970)
Chi^2	86.2***		90.7***	84.9***		57.5***		87.9***	56.1***	
F					5.9***					3.6***
Pseudo R^2			8.9					9.9		
R^2					5.9					5.0
Partial F [IV]	21.8***			31.9***		14.8***			20.1***	
Partial R^2 [IV]	5.3			3.9		6.3			3.5	
Chi^2 [no over-id. test]	0.1					9.0***				
F [exog. test]	7.0***			6.9***		0.0			0.2	
Observations	1,938		1,938	1,938	1,938	1,512		1,512	1,512	1,512

Table B3: Multivariate analysis with instrumental variables and with time controls/restriction: wealth effect from non-diversifying and diversifying investment in mergers and acquisitions

This table presents multivariate analysis for the wealth effect from investment in non-diversifying and diversifying mergers and acquisitions. For brevity we only report the second stage results of an instrumental variable regression where the GIM index is treated as a suspect endogenous variable. Bids are classified as non-diversifying if the acquirer and the target share the same two-digit SIC code. Columns (1) and (4) present results with year fixed effects. Columns (2) and (5) present results using an additional control variable, *Post-SOX*, that equals one for years 2003 and later. Columns (3) and (6) present results with sample period is restricted to 1993-2009 to limit the forward fill of the data for 2006 from RiskMetrics to no more than elsewhere in the dataset for constructing GIM index, IPO GIM index, & HQ GIM index. Please refer to Appendix A for a description of all variables. Standard errors are clustered at the firm level. ***, **, & * denote one-, five-, and ten-percent significance respectively.

	Non-diversifying bids			**Diversifying bids**		
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
Variables	**Ann. return [-1 to +1]**	**Ann. return [-1 to +1]**	**Ann. return [-1 to +1]**	**Ann. return [-1 to +1]**	**Ann. return [-1 to +1]**	**Ann. return [-1 to +1]**
Instrumented GIM index	0.6826***	0.6789***	0.7958***	0.2095	0.2349	0.2486
	(0.1927)	(0.1913)	(0.2103)	(0.2437)	(0.2475)	(0.2838)
Serial (0/1)	-0.2778	-0.3268	-0.4124	-0.5864*	-0.5670*	-0.8698**
	(0.2537)	(0.2532)	(0.2747)	(0.3142)	(0.3155)	(0.3504)
Cross-border (0/1)	-0.3990	-0.4064	-0.4453	-0.1855	-0.2207	-0.3492
	(0.2635)	(0.2627)	(0.2970)	(0.2740)	(0.2748)	(0.3338)
Public (0/1)	-2.2831***	-2.3284***	-2.3502***	-1.6175***	-1.6252***	-1.7386***
	(0.3370)	(0.3384)	(0.3626)	(0.4048)	(0.4051)	(0.4412)
Stock only (0/1)	-1.2442**	-1.2925**	-1.1751**	-0.6484	-0.3313	-0.2095
	(0.5391)	(0.5226)	(0.5048)	(0.6664)	(0.6650)	(0.6527)
ln(Value)	0.1979	0.1832	0.0845	0.0196	0.0719	0.0755
	(0.1338)	(0.1345)	(0.1419)	(0.1534)	(0.1566)	(0.1745)
ln(Size)	-0.5670***	-0.5029***	-0.4603***	-0.2835*	-0.4431***	-0.5233***
	(0.1523)	(0.1463)	(0.1608)	(0.1704)	(0.1719)	(0.1874)
Leverage	-0.3410	-0.3039	0.1956	2.2357*	2.1750*	1.8304
	(0.9027)	(0.9113)	(0.9935)	(1.1443)	(1.1435)	(1.2598)
Market-to-book	0.0815	0.0775	0.1224	-0.2252	-0.1823	-0.1847
	(0.1735)	(0.1734)	(0.1682)	(0.1970)	(0.2037)	(0.2110)
Tangibility	-0.6056	-0.6386	-0.7843*	-0.5584	-0.4292	-0.4951
	(0.4152)	(0.4149)	(0.4587)	(0.5074)	(0.4984)	(0.5606)
Liquidity	0.4175	0.6354	0.9323	-1.0594	-0.8767	-0.7189
	(0.9282)	(0.9321)	(1.0160)	(1.2158)	(1.2319)	(1.3705)
Sales growth	-0.0162	-0.1253	0.0892	-0.2753	-0.2456	-0.2264
	(0.4065)	(0.4013)	(0.4123)	(0.6401)	(0.6322)	(0.6866)
ROA	-0.3530	-0.5142	0.0826	0.0216	-1.0460	0.2219
	(1.5129)	(1.5191)	(1.6175)	(2.7020)	(2.6640)	(2.8739)
Stock return	-0.1218	-0.1145	-0.1066	0.2311	-0.0450	-0.3003
	(0.4054)	(0.3883)	(0.4143)	(0.4453)	(0.4427)	(0.4941)
Stock volatility	22.4121	21.6184	31.3085	47.6468	6.1479	4.4564
	(20.0642)	(17.7722)	(19.2365)	(33.6874)	(28.8268)	(33.9428)
Industry concentration	3.6303**	3.3450**	4.7045***	0.9784	0.7304	0.2573
	(1.6873)	(1.6552)	(1.8211)	(1.2660)	(1.2689)	(1.7026)
Industry M&A	-1.1819	-1.6349	-1.4883	-2.3502	-2.6612	-2.3100
	(1.9100)	(1.9023)	(1.9841)	(2.3840)	(2.4007)	(2.5016)
Post-SOX		-0.0352			-0.1738	
		(0.2849)			(0.3349)	
Constant	-0.3903	-2.3485	-3.9363*	1.1884	2.2690	2.7680
	(2.0197)	(2.1035)	(2.3093)	(3.2878)	(3.2488)	(3.6815)
Year controls	Yes	No	No	Yes	No	No
Chi^2	142.0***	115.0***	106.4***	87.9***	55.4***	60.3***
Partial F [IV]	37.4***	37.9***	33.8***	23.1***	23.2***	19.4***
Partial R^2 [IV]	6.3	6.5	6.3	5.6	5.5	5.3
Chi^2 [no over-id. test]	0.0	0.0	0.0	0.2	0.0	0.0
F [exog. test]	13.8***	14.1***	16.4***	0.9	1.2	1.1
Observations	3,055	3,055	2,659	2,307	2,307	1,961

Table B4: Multivariate analysis with instrumental variables and more homogenization: wealth effect from non-diversifying and diversifying investment in mergers and acquisitions

This table presents multivariate analysis for the wealth effect from investment in non-diversifying and diversifying mergers and acquisitions. For brevity we only report the second stage results of an instrumental variable regression where the GIM index is treated as a suspect endogenous variable. Bids are classified as non-diversifying if the acquirer and the target share the same two-digit SIC code. Columns (1) and (5) present results using a sample serial bids. Bids are classified as serial if the acquiring firm undertakes at least two acquisitions within a three-year period. Columns (2) and (6) present results using a sample of bids that excludes public targets. Columns (3) and (7) presents results using a sample of bids that excludes all stock deals. Columns (4) and (8) present results using a sample of bids that excludes non-serial bids, public targets, all stock deals and cross-border deals. Please refer to Appendix A for a description of all variables. Standard errors are clustered at the firm level. ***, **, & * denote one-, five-, and ten-percent significance respectively.

	Non-diversifying bids				**Diversifying bids**			
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**	**(8)**
Variables	**Ann. return [-1 to +1]**	**Ann. return [-1 to +1]**	**Ann. return [-1 to +1]**	**Ann. return [-1 to +1]**	**Ann. return [-1 to +1]**	**Ann. return [-1 to +1]**	**Ann. return [-1 to +1]**	**Ann. return [-1 to +1]**
Instrumented								
GIM index	0.6788***	0.5713***	0.5794***	0.6031***	0.0013	0.2550	0.1116	-0.1664
	(0.2099)	(0.1778)	(0.1881)	(0.2096)	(0.2516)	(0.2161)	(0.2049)	(0.2385)
Serial		-0.0813	-0.4484*			-0.4911	-0.2073	
		(0.2643)	(0.2549)			(0.3403)	(0.3156)	
Cross-border	-0.4244	-0.2432	-0.2742		-0.2792	-0.2317	-0.0673	
	(0.3294)	(0.2646)	(0.2491)		(0.3375)	(0.2855)	(0.2734)	
Public	-2.5731***		-2.0124***		-1.4626***		-1.1438***	
	(0.4443)		(0.3322)		(0.4132)		(0.4130)	
Stock only	-0.6419	-0.2241			-1.1786*	1.1849		
	(0.6151)	(0.6669)			(0.6935)	(0.8758)		
ln(Value)	0.1202	0.7590***	0.2648**	0.6590***	-0.3168*	0.5180***	0.2060	0.2870
	(0.1706)	(0.1523)	(0.1350)	(0.2264)	(0.1659)	(0.1798)	(0.1508)	(0.2183)
ln(Size)	-0.3577**	-0.9509***	-0.5202***	-0.7255***	0.0654	-0.7625***	-0.5285***	-0.4303**
	(0.1816)	(0.1602)	(0.1424)	(0.2347)	(0.1721)	(0.1997)	(0.1661)	(0.2169)
Leverage	-0.0104	-0.7422	-0.9120	-1.1491	0.3966	3.0996**	2.0680*	1.1888
	(1.1307)	(0.8980)	(0.8737)	(1.1911)	(1.1459)	(1.2446)	(1.1210)	(1.4098)
Market-to-book	0.1145	-0.0487	-0.0972	-0.3147	-0.0880	-0.2405	-0.3018	-0.4043
	(0.1825)	(0.1796)	(0.1563)	(0.2511)	(0.2109)	(0.2663)	(0.2111)	(0.3065)
Tangibility	-0.8164*	-0.3175	-0.6171	-0.3685	0.3540	-0.6723	-0.4396	-0.5225
	(0.4933)	(0.3804)	(0.4137)	(0.5165)	(0.5927)	(0.5091)	(0.4889)	(0.5476)
Liquidity	0.0274	1.0333	1.0724	2.2693	0.1304	-0.6374	-1.3703	-0.1591
	(1.2408)	(1.0055)	(0.9477)	(1.4993)	(1.3911)	(1.1975)	(1.2183)	(1.5681)
Sales growth	-0.0436	-0.2289	-0.1120	0.1324	-0.1918	-0.0500	-0.7877	-0.2732
	(0.4276)	(0.4596)	(0.4135)	(0.5429)	(0.6781)	(0.6070)	(0.6129)	(0.6244)
ROA	-0.8610	-1.0547	0.0842	0.1088	0.6606	-1.8794	-1.4671	0.0294
	(1.9723)	(1.6284)	(1.7036)	(2.5468)	(3.0118)	(2.9753)	(2.5756)	(3.9137)
Stock return	0.1292	-0.1498	0.1373	0.5906	0.0158	-0.0708	-0.0184	0.4809

	Non-diversifying bids				Diversifying bids			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Variables	**Ann. return [-1 to +1]**	**Ann. return [-1 to +1]**	**Ann. return [-1 to +1]**	**Ann. return [-1 to +1]**	**Ann. return [-1 to +1]**	**Ann. return [-1 to +1]**	**Ann. return [-1 to +1]**	**Ann. return [-1 to +1]**
	(0.4528)	(0.3975)	(0.3908)	(0.5541)	(0.5045)	(0.4649)	(0.4538)	(0.5970)
Stock volatility	19.0035	42.1118**	31.4770*	54.9583**	-30.3980	15.8129	-0.0815	-46.0185*
	(21.3393)	(16.7285)	(18.2521)	(24.6704)	(24.8141)	(29.5411)	(26.4379)	(27.2187)
Industry concentration	2.0591	4.5848***	2.7767*	3.8549	-0.1173	0.4863	1.4554	-0.4135
	(2.3317)	(1.6948)	(1.6731)	(2.6423)	(1.2840)	(1.3096)	(1.3321)	(1.5024)
Industry M&A	-2.6299	-1.7140	-3.7977**	-7.5167***	-0.4984	-4.6621*	-2.3321	2.0464
	(2.0824)	(2.0763)	(1.8542)	(2.8100)	(2.9192)	(2.5545)	(2.4056)	(3.1371)
Constant	-3.0672	-1.6539	-1.5180	-2.8132	2.2289	2.0398	3.4525	5.7928*
	(2.2454)	(1.9298)	(1.9575)	(2.4252)	(3.2792)	(2.7735)	(2.7170)	(3.1962)
Chi^2	69.4***	71.4***	92.5***	42.2***	40.8***	26.3**	37.2***	14.1
Partial F [IV]	29.9***	39.8***	33.8***	27.5***	13.9***	23.4***	25.9***	11.4***
Partial R^2 [IV]	7.4	7.9	6.3	10.2	5.8	6.4	6.8	6.8
Chi^2 [no over-id. test]	0.2	0.7	0.0	0.3	0.4	0.0	0.1	0.0
F [exog. test]	11.4***	10.0***	10.2***	9.0***	0.2	1.9	0.4	0.0
Observations	1,999	2,277	2,707	1,068	1,511	1,806	2,082	858